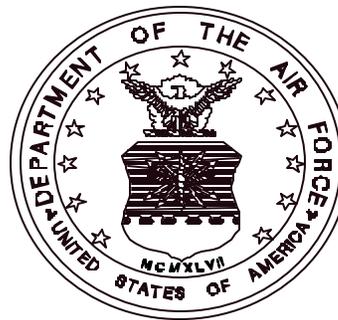


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DEPARTMENT OF THE AIR FORCE
RDT&E DESCRIPTIVE SUMMARIES FOR
FISCAL YEAR 2002 AMENDED BUDGET SUBMISSION
VOLUME II



JUNE 2001

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TABLE OF CONTENTS

	PE	PROGRAM ELEMENT TITLE	PAGE
#1 - Basic Research			
	1	0601102F Defense Research Sciences	1
#2 - Applied Research			
	2	0602102F Materials	47
	3	0602201F Aerospace Flight Dynamics	65
	4	0602202F Human Effectiveness Applied Research	83
	5	0602203F Aerospace Propulsion	105
	6	0602204F Aerospace Sensors	129
	7	0602269F Hypersonic Technology Program	153
	8	0602601F Space Technology	157
	9	0602602F Conventional Munitions	183
	10	0602605F DIRECTED ENERGY TECHNOLOGY	193
	11	0602702F Command Control and Communications	203
	12	0602805F Dual Use Science & Technology	221
#3 - Advanced Technology Development			
	13	0603106F Logistics Systems Technology	227
	14	0603112F Advanced Materials for Weapon Systems	231
	15	0603202F Aerospace Propulsion Subsystems Integration	245
	16	0603203F Advanced Aerospace Sensors	249
	17	0603205F Flight Vehicle Technology	261
	18	0603211F Aerospace Structures	267
	19	0603216F Aerospace Propulsion and Power Technology	275
	20	0603227F Personnel Training and Simulation Technology	295
	21	0603231F Crew Systems and Personnel Protection Technology	299
	22	0603245F Flight Vehicle Technology Integration	313
	23	0603253F Advanced Sensor Integration	317

TABLE OF CONTENTS

	PE	PROGRAM ELEMENT TITLE	PAGE	
	24	0603270F	Electronic Combat Technology	323
	25	0603302F	Space and Missile Rocket Propulsion	333
	26	0603311F	Ballistic Missile Technology	343
	27	0603401F	Advanced Spacecraft Technology	347
	28	0603410F	Space Systems Environmental Interactions Technology	375
	29	0603444F	MAUI SPACE SURVEILLANCE SYSTEM	379
	30	0603601F	Conventional Weapons Technology	383
	31	0603605F	Advanced Weapons Technology	393
	32	0603723F	Environmental Engineering Technology	409
	33	0603726F	Aerospace Info Tech Sys Integration	413
	34	0603789F	C3I Advanced Development	423
	35	0603876F	Space Based Laser	441
 #4 - Demonstration and Validation				
	36	0603260F	Intelligence Advanced Development	445
	37	0603319F	Airborne Laser Technology	463
	38	0603421F	GLOBAL POSITIONING SYSTEM	469
	39	0603430F	Advanced (EHF MILSATCOM (Space)	473
	40	0603432F	Polar MILSATCOM (Space)	479
	41	0603434F	National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	485
	42	0603438F	Space Control Technology	493
	43	0603617F	Command Control and Communication Applications	499
	44	0603742F	Combat Identification Technology	519
	45	0603790F	NATO Cooperative R&D	527
	46	0603800F	Joint Strike Fighter	551
	47	0603850F	Integrated Broadcast Service (DEM/VAL)	563
	48	0603851F	ICBM - DEM/VAL	569
	49	0603854F	Wideband MILSATCOM (Space)	599
	50	0603856F	Air Force/National Program Cooperation (AFNPC)	613

TABLE OF CONTENTS

	PE	PROGRAM ELEMENT TITLE	PAGE	
	51	0603859F	Pollution Prevention	619
	52	0603860F	Joint Precision Approach and Landing Systems - Dem/Val	625
	53	0604327F	Hardened Target Munitions	633
 #5 - Engineering and Manufacturing Development				
	54	0207249F	Precision Attack Systems	639
	55	0207701F	Full Combat Mission Training	643
	56	0305176F	Combat Survivor Evader Locator	647
	57	0401318F	CV-22	653
	58	0603840F	Global Broadcast Service (GBS)	657
	59	0604012F	Joint Helmet Mounted Cueing System (JHMCS)	663
	60	0604201F	Integrated Avionics Planning and Development	669
	61	0604222F	Nuclear Weapons Support	675
	62	0604226F	B-1B	695
	63	0604227F	Distributed Mission Training (DMT)	705
	64	0604233F	Specialized Undergraduate Pilot Training	711
	65	0604239F	F-22 EMD	723
	66	0604240F	B-2 Advanced Technology Bomber	739
	67	0604251F	SPACE-BASED RADAR EMD	745
	68	0604270F	EW Development	751
	69	0604328F	Extended Range Cruise Missile (ERCM)	785
	70	0604329F	Small Diameter Bomb	791
	71	0604441F	Space Based Infrared Systems (SBIRS) High EMD	797
	72	0604442F	Space Based Infrared Systems (SBIRS) Low	803
	73	0604479F	MILSTAR LDR/MDR Sat Comm	809
	74	0604600F	Munitions Dispenser Development	817
	75	0604602F	Armament/Ordnance Development	823
	76	0604604F	Submunitions	837
	77	0604617F	Agile Combat Support	843
	78	0604618F	Joint Direct Attack Munition	855

TABLE OF CONTENTS

	PE	PROGRAM ELEMENT TITLE	PAGE
79	0604703F	Aeromedical Systems Development	861
80	0604706F	Life Support Systems	867
81	0604708F	Civil, Fire, Environmental, Shelter	875
82	0604727F	Joint Standoff Weapons Systems	885
83	0604735F	Combat Training Ranges	891
84	0604740F	Integrated Command & Control Applications	899
85	0604750F	Intelligence Equipment	909
86	0604754F	Tactical Data Link Integration	917
87	0604762F	Common Low Observable Verification Sys	933
88	0604779F	Tactical Data Link Interoperability	939
89	0604800F	Joint Strike Fighter EMD	947
90	0604805F	Commercial Operations and Support Savings Initiative	953
91	0604851F	ICBM - EMD	959
92	0604853F	Evolved Expendable Launch Vehicle - EMD	983
93	0605011F	RDT&E For Aging Aircraft	989
#6 - Management and Support			
94	0604256F	Threat Simulator Development	995
95	0604759F	Major T&E Investment	1,007
96	0605101F	RAND Project Air Force	1,019
97	0605306F	Ranch Hand II Epidemiology Study	1,023
98	0605712F	Initial Operational Test & Evaluation	1,027
99	0605807F	Test and Evaluation Support	1,037
100	0605854F	Pollution Prevention	1,049
101	0605860F	Rocket Systems Launch Program (RSLP)	1,053
102	0605864F	Space Test Program	1,057
103	0804731F	GENERAL SKILL TRAINING	1,061
104	0909980F	JUDGEMENT FUND REIMBURSEMENT	1,063
105	1001004F	International Activities	1,065

TABLE OF CONTENTS

	PE	PROGRAM ELEMENT TITLE	PAGE
#7 - Operational System Development			
106	0101113F	B-52 SQUADRONS	1,073
107	0101120F	Advanced Cruise Missile	1,087
108	0101122F	Air Launched Cruise Missile	1,093
109	0102325F	Joint Surveillance System	1,101
110	0102326F	Region/ Sector Operations Control Center	1,107
111	0102411F	North Atlantic Defense System	1,113
112	0203761F	Warfighter Rapid Acquisition Program	1,119
113	0207027F	Air Space Command & Control Agency	1,123
114	0207028F	Joint Expeditionary Force Experiment	1,129
115	0207131F	A-10 SQUADRONS	1,143
116	0207133F	F-16 Squadrons	1,149
117	0207134F	F-15E SQUADRONS	1,157
118	0207136F	Manned Destructive Suppression	1,165
119	0207138F	F-22 SQUADRONS	1,171
120	0207141F	F-117A Squadron	1,177
121	0207161F	Tactical AIM Missiles	1,183
122	0207163F	Advanced Medium Range Air-to-Air Missile	1,191
123	0207247F	Air Force TENCAP	1,197
124	0207253F	Compass Call	1,203
125	0207268F	Aircraft Engine Component Improvement Program (CIP)	1,207
126	0207277F	Chief's Innovation Program	1,213
127	0207320F	Sensor Fuzed Weapon (SFW)	1,217
128	0207325F	Joint Air-to-Surface Standoff Missile (JASSM)	1,223
129	0207410F	AEROSPACE OPERATION CENTER (AOC)	1,229
130	0207412F	Modular Control System	1,235
131	0207417F	Airborne Warning and Control System (AWACS)	1,241
132	0207423F	Advanced Communications Systems	1,249
133	0207438F	Theater Battle Management (TBM) C4I	1,261
134	0207581F	JOINT STARS	1,275

TABLE OF CONTENTS

PE	PROGRAM ELEMENT TITLE	PAGE
135	0207590F Seek Eagle	1,289
136	0207601F USAF Modeling and Simulation	1,295
137	0207605F Wargaming and Simulation Centers	1,311
138	0208006F Mission Planning Systems	1,315
139	0208021F Information Warfare Support	1,323
140	0208031F WRM-EQUIPMENT/SECONDARY ITEMS	1,329
141	0208060F Theater Missile Defenses	1,335
142	0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER	1,347
143	0303110F Defense Satellite Communications System	1,353
144	0303112F AIR FORCE COMMUNICATIONS	1,359
145	0303131F Minimum Essential Emergency Communications Network (MEECN)	1,363
146	0303140F Information Systems Security Program	1,379
147	0303141F Global Combat Support System (GCSS)	1,403
148	0303150F WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	1,433
149	0303401F Communications Security	1,439
150	0303601F MILSATCOM Terminals	1,445
151	0305099F Global Air Traffic Management (GATM)	1,451
152	0305110F Satellite Control Network	1,463
153	0305111F Weather Service	1,471
154	0305114F Air Traffic Control/Approach/Landing System (ATCALs)	1,477
155	0305128F Security And Investigative Activities	1,489
156	0305144F Titan Space Launch Vehicles	1,495
157	0305160F Defense Meteorological Satellite Program	1,501
158	0305164F NAVSTAR Global Positioning System (User EQ) Space)	1,509
159	0305165F NAVSTAR GPS (Space)	1,517
160	0305182F Spacelift Range System	1,525
161	0305202F Dragon U-2 (JMIP)	1,533
162	0305205F Endurance Unmanned Aerial Vehicles	1,547
163	0305206F Airborne Reconnaissance Systems	1,567

TABLE OF CONTENTS

	PE	PROGRAM ELEMENT TITLE	PAGE
164	0305207F	Manned Reconnaissance System	1,591
165	0305208F	Distributed Common Ground Systems	1,603
166	0305906F	NCCMC - TW/AA System	1,615
167	0305910F	SPACETRACK	1,629
168	0305911F	Defense Support Program	1,655
169	0305913F	NUDET Detection System (Space)	1,667
170	0305917F	Space Architect	1,673
171	0308601F	Modeling and Simulation Support	1,679
172	0308699F	Shared Early Warning System	1,687
173	0401115F	C-130 AIRLIFT SQUADRONS	1,693
174	0401119F	C-5 Airlift Squadrons	1,699
175	0401130F	C-17 Aircraft	1,713
176	0401134F	Large Aircraft InfraRed Counter Measures (LAIRCM)	1,725
177	0401214F	Air Cargo Materiel Handling (463-L)	1,731
178	0401218F	KC-135s	1,735
179	0401219F	KC-10S	1,743
180	0404011F	Special Operations Forces	1,749
181	0702207F	Depot Maintenance (Non-IF)	1,755
182	0708011F	Industrial Preparedness	1,761
183	0708026F	Productivity, Reliability, Availability, Maintainability Program	1,769
184	0708071F	Joint Logistics Program - Ammunition System	1,775
185	0708611F	Support Systems Development	1,781
186	0708612F	Computer Resources Support Improvement Program	1,801
187	0901218F	Civilian Compensation Program	1,809
188	1001018F	NATO AGS	1,813

Other Exhibits

Military Construction Project Data (DD Form 1391)

Combating Terrorism Exhibit

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
A-10 SQUADRONS	0207131F	1,143
Advanced (EHF MILSATCOM (Space)	0603430F	473
Advanced Aerospace Sensors	0603203F	249
Advanced Communications Systems	0207423F	1,249
Advanced Cruise Missile	0101120F	1,087
Advanced Materials for Weapon Systems	0603112F	231
Advanced Medium Range Air-to-Air Missile	0207163F	1,191
Advanced Sensor Integration	0603253F	317
Advanced Spacecraft Technology	0603401F	347
Advanced Weapons Technology	0603605F	393
Aeromedical Systems Development	0604703F	861
Aerospace Flight Dynamics	0602201F	65
Aerospace Info Tech Sys Integration	0603726F	413
AEROSPACE OPERATION CENTER (AOC)	0207410F	1,229
Aerospace Propulsion	0602203F	105
Aerospace Propulsion and Power Technology	0603216F	275
Aerospace Propulsion Subsystems Integration	0603202F	245
Aerospace Sensors	0602204F	129
Aerospace Structures	0603211F	267
Agile Combat Support	0604617F	843
Air Cargo Materiel Handling (463-L)	0401214F	1,731
AIR FORCE COMMUNICATIONS	0303112F	1,359
Air Force TENCAP	0207247F	1,197
Air Force/National Program Cooperation (AFNPC)	0603856F	613
Air Launched Cruise Missile	0101122F	1,093
Air Space Command & Control Agency	0207027F	1,123
Air Traffic Control/Approach/Landing System (ATCAL)	0305114F	1,477
Airborne Laser Technology	0603319F	463
Airborne Reconnaissance Systems	0305206F	1,567
Airborne Warning and Control System (AWACS)	0207417F	1,241
Aircraft Engine Component Improvement Program (CIP)	0207268F	1,207

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Armament/Ordnance Development	0604602F	823
B-1B	0604226F	695
B-2 Advanced Technology Bomber	0604240F	739
B-52 SQUADRONS	0101113F	1,073
Ballistic Missile Technology	0603311F	343
C-130 AIRLIFT SQUADRONS	0401115F	1,693
C-17 Aircraft	0401130F	1,713
C3I Advanced Development	0603789F	423
C-5 Airlift Squadrons	0401119F	1,699
Chief's Innovation Program	0207277F	1,213
Civil, Fire, Environmental, Shelter	0604708F	875
Civilian Compensation Program	0901218F	1,809
Combat Identification Technology	0603742F	519
Combat Survivor Evader Locator	0305176F	647
Combat Training Ranges	0604735F	891
Command Control and Communication Applications	0603617F	499
Command Control and Communications	0602702F	203
Commercial Operations and Support Savings Initiative	0604805F	953
Common Low Observable Verification Sys	0604762F	933
Communications Security	0303401F	1,439
Compass Call	0207253F	1,203
Computer Resources Support Improvement Program	0708612F	1,801
Conventional Munitions	0602602F	183
Conventional Weapons Technology	0603601F	383
Crew Systems and Personnel Protection Technology	0603231F	299
CV-22	0401318F	653
Defense Meteorological Satellite Program	0305160F	1,501
Defense Research Sciences	0601102F	1
Defense Satellite Communications System	0303110F	1,353
Defense Support Program	0305911F	1,655
Depot Maintenance (Non-IF)	0702207F	1,755

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
DIRECTED ENERGY TECHNOLOGY	0602605F	193
Distributed Common Ground Systems	0305208F	1,603
Distributed Mission Training (DMT)	0604227F	705
Dragon U-2 (JMIP)	0305202F	1,533
Dual Use Science & Technology	0602805F	221
E-4B NATIONAL AIRBORNE OPERATIONS CENTER	0302015F	1,347
Electronic Combat Technology	0603270F	323
Endurance Unmanned Aerial Vehicles	0305205F	1,547
Environmental Engineering Technology	0603723F	409
Evolved Expendable Launch Vehicle - EMD	0604853F	983
EW Development	0604270F	751
Extended Range Cruise Missile (ERCM)	0604328F	785
F-117A Squadron	0207141F	1,177
F-15E SQUADRONS	0207134F	1,157
F-16 Squadrons	0207133F	1,149
F-22 EMD	0604239F	723
F-22 SQUADRONS	0207138F	1,171
Flight Vehicle Technology	0603205F	261
Flight Vehicle Technology Integration	0603245F	313
Full Combat Mission Training	0207701F	643
GENERAL SKILL TRAINING	0804731F	1,061
Global Air Traffic Management (GATM)	0305099F	1,451
Global Broadcast Service (GBS)	0603840F	657
Global Combat Support System (GCSS)	0303141F	1,403
GLOBAL POSITIONING SYSTEM	0603421F	469
Hardened Target Munitions	0604327F	633
Human Effectiveness Applied Research	0602202F	83
Hypersonic Technology Program	0602269F	153
ICBM - DEM/VAL	0603851F	569
ICBM - EMD	0604851F	959
Industrial Preparedness	0708011F	1,761

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Information Systems Security Program	0303140F	1,379
Information Warfare Support	0208021F	1,323
Initial Operational Test & Evaluation	0605712F	1,027
Integrated Avionics Planning and Development	0604201F	669
Integrated Broadcast Service (DEM/VAL)	0603850F	563
Integrated Command & Control Applications	0604740F	899
Intelligence Advanced Development	0603260F	445
Intelligence Equipment	0604750F	909
International Activities	1001004F	1,065
Joint Air-to-Surface Standoff Missile (JASSM)	0207325F	1,223
Joint Direct Attack Munition	0604618F	855
Joint Expeditionary Force Experiment	0207028F	1,129
Joint Helmet Mounted Cueing System (JHMCS)	0604012F	663
Joint Logistics Program - Ammunition System	0708071F	1,775
Joint Precision Approach and Landing Systems - Dem/Val	0603860F	625
Joint Standoff Weapons Systems	0604727F	885
JOINT STARS	0207581F	1,275
Joint Strike Fighter	0603800F	551
Joint Strike Fighter EMD	0604800F	947
Joint Surveillance System	0102325F	1,101
JUDGEMENT FUND REIMBURSEMENT	0909980F	1,063
KC-10S	0401219F	1,743
KC-135s	0401218F	1,735
Large Aircraft InfraRed Counter Measures (LAIRCM)	0401134F	1,725
Life Support Systems	0604706F	867
Logistics Systems Technology	0603106F	227
Major T&E Investment	0604759F	1,007
Manned Destructive Suppression	0207136F	1,165
Manned Reconnaissance System	0305207F	1,591
Materials	0602102F	47
MAUI SPACE SURVEILLANCE SYSTEM	0603444F	379

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
MILSATCOM Terminals	0303601F	1,445
MILSTAR LDR/MDR Sat Comm	0604479F	809
Minimum Essential Emergency Communications Network (MEECN)	0303131F	1,363
Mission Planning Systems	0208006F	1,315
Modeling and Simulation Support	0308601F	1,679
Modular Control System	0207412F	1,235
Munitions Dispenser Development	0604600F	817
National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	0603434F	485
NATO AGS	1001018F	1,813
NATO Cooperative R&D	0603790F	527
NAVSTAR Global Positioning System (User EQ) Space)	0305164F	1,509
NAVSTAR GPS (Space)	0305165F	1,517
NCMC - TW/AA System	0305906F	1,615
North Atlantic Defense System	0102411F	1,113
Nuclear Weapons Support	0604222F	675
NUDET Detection System (Space)	0305913F	1,667
Personnel Training and Simulation Technology	0603227F	295
Polar MILSATCOM (Space)	0603432F	479
Pollution Prevention	0603859F	619
Pollution Prevention	0605854F	1,049
Precision Attack Systems	0207249F	639
Productivity, Reliability, Availability, Maintainability Program	0708026F	1,769
Ranch Hand II Epidemiology Study	0605306F	1,023
RAND Project Air Force	0605101F	1,019
RDT&E For Aging Aircraft	0605011F	989
Region/ Sector Operations Control Center	0102326F	1,107
Rocket Systems Launch Program (RSLP)	0605860F	1,053
Satellite Control Network	0305110F	1,463
Security And Investigative Activities	0305128F	1,489
Seek Eagle	0207590F	1,289
Sensor Fuzed Weapon (SFW)	0207320F	1,217

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
Shared Early Warning System	0308699F	1,687
Small Diameter Bomb	0604329F	791
Space and Missile Rocket Propulsion	0603302F	333
Space Architect	0305917F	1,673
Space Based Infrared Systems (SBIRS) High EMD	0604441F	797
Space Based Infrared Systems (SBIRS) Low	0604442F	803
Space Based Laser	0603876F	441
Space Control Technology	0603438F	493
Space Systems Environmental Interactions Technology	0603410F	375
Space Technology	0602601F	157
Space Test Program	0605864F	1,057
SPACE-BASED RADAR EMD	0604251F	745
Spacelift Range System	0305182F	1,525
SPACETRACK	0305910F	1,629
Special Operations Forces	0404011F	1,749
Specialized Undergraduate Pilot Training	0604233F	711
Submunitions	0604604F	837
Support Systems Development	0708611F	1,781
Tactical AIM Missiles	0207161F	1,183
Tactical Data Link Integration	0604754F	917
Tactical Data Link Interoperability	0604779F	939
Test and Evaluation Support	0605807F	1,037
Theater Battle Management (TBM) C4I	0207438F	1,261
Theater Missile Defenses	0208060F	1,335
Threat Simulator Development	0604256F	995
Titan Space Launch Vehicles	0305144F	1,495
USAF Modeling and Simulation	0207601F	1,295
Warfighter Rapid Acquisition Program	0203761F	1,119
Wargaming and Simulation Centers	0207605F	1,311
Weather Service	0305111F	1,471
Wideband MILSATCOM (Space)	0603854F	599

ALPHABETICAL LISTING

Program Element Title	PE	PAGE
WRM-EQUIPMENT/SECONDARY ITEMS	0208031F	1,329
WWMCCS/GLOBAL COMMAND & CONTROL SYSTEM	0303150F	1,433

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**Fiscal Year 2002 Amended Budget Submission
RDT&E Descriptive Summaries, Volume II
June 2001**

INTRODUCTION AND EXPLANATION OF CONTENTS

(U) **DISCLAIMER:** This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

1. (U) **GENERAL.** This document has been prepared to provide information on the United States Air Force (USAF) Research, Development, Test and Evaluation (RDT&E) program elements and projects in the FY2002 President's Budget Submission (PB). All formats in this document are in accordance with the guidelines of the DoD Financial Management Regulation, Volume 2B, Chapter 5, with the exception of the R-3 exhibit. The Air Force could not support the format matrix because our programs do not track their programs in the manner required to complete the exhibit.

- d. **Contents:** Exhibits R-2, R-2a and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY 2002 RDT&E program except the classified program elements. The formats and contents of this document are in accordance with the guidelines and requirement of the Congressional committees insofar as possible. The F-22 "P-5" budget exhibit directed by the Authorization Conference Report number 106-371 has been inserted behind the R-3 exhibit for program element 0604239F.
- e. The "Other Program Funding Summary" portion of the R-2 includes, in addition to RDT&E funds, Procurement funds and quantities, Military Construction appropriation funds on specific development programs, Operations and Maintenance appropriation funds where they are essential to the development effort described, and where appropriate, Department of Energy (DOE) costs.
- f. The Justification book has been assembled in accordance with DoD Financial Management Regulation 7000.14, Vol 2B Cpt 5, Sec 050402 with the exception of the R-1, Project Funding Listing which was distributed under a separate cover due to classification .

2. (U) **CLASSIFICATION.**

a. All exhibits contained in Volumes I, II and III are UNCLASSIFIED. Classified exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

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PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
BUDGET ACTIVITY 1: BASIC RESEARCH	
BUDGET ACTIVITY 2: APPLIED RESEARCH	
0602102F Materials	In FY 2002, Project 4915, Deployed Air Base Technology, efforts were transferred from PE 0602201F, Aerospace Vehicle Technologies, Project 4397, Air Base Technology, to align resources with the Air Force Research Laboratory organization.
0602201F Aerospace Vehicle Technologies	<p>In FY 2002, this PE was renamed Aerospace Vehicle Technologies (formerly Aerospace Flight Dynamics). Not reflected in current documentation submission.</p> <p>In FY 2002, selected efforts from Project 2401, Structures, transferred to Project 2403, Flight Control/Vehicle-Pilot Interface, and Project 2404, Aeromechanics, within the PE.</p> <p>In FY 2002, Project 4397, Air Base Technology, transferred efforts to PE 0602102F, Materials, Project 4915, Deployed Air Base Technology, to align resources with the Air Force Research Laboratory organization.</p>
0602202F Human Effectiveness Applied Research	In FY 2002, Project 1900, Environmental Quality Technology, was terminated.
0602203F Aerospace Propulsion	<p>In FY 2002, Project 3012, Advanced Propulsion Technology, efforts were transferred from PE 0603202F, Human Effectiveness Applied Research, Project 3066, Turbine Engine Technology,</p> <p>and 0603216F Aerospace Prop and Power Technology, Project 668A, Aircraft Propulsion Subsys Int, and Project 681B, Advanced Turbine Engine Gas Generator, to align resources with the Air Force Research Laboratory organization.</p>
0602204F Aerospace Sensors	In FY 2002, Project 4916, Electromagnetic Tech, efforts were transferred from PE 0602702F, Command, Control and Communications, Project 4600, Electromagnetic Tech, to align resources with the Air Force Research Laboratory organization.
0602602F Conventional Munitions	In FY 2002, Project 2068, Advanced Guidance Technology, was separated from Project 2502, Ordnance Technology for clarity of describing the different technologies.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0602702F Command, Control and Communications	<p>In FY 2002, Project 4600, Electromagnetic Tech, transferred efforts to PE 0602204F, Aerospace Sensors, Project 4916, Electromagnetic Tech.</p> <p>In FY 2002, selected efforts in Project 5581, Command and Control (C2) Technology, Project 4519, Communications Technology, and Project 4594, Information Technology, transferred to Project 4917, Collaborative Technology, within this PE to align resources with the Air Force Research Laboratory organization.</p>
BUDGET ACTIVITY 3: ADVANCED TECHNOLOGY DEVELOPMENT	
0603106F Logistics Systems Technology	<p>In FY 2002, Project 2745 Logistics Performance and Support Technology (S&T), transferred efforts to PE 0603231F, Crew Systems and Personnel Protection Technology, Project 4923, Logistics Readiness and Sustainment, to align resources with the Air Force Research Laboratory organization.</p>
0603112F Advanced Materials for Weapon Systems	<p>In FY 2002, Project 4918, Deployed Air Base Demonstrations, efforts were transferred from PE 0603205F, Flight Vehicle Technology, Project 4398, Air Base Technology.</p>
0603202F Aerospace Prop Subsystems Integration	<p>In FY 2002, Project 668A, Aircraft Propulsion Subsystem Integration, transferred efforts to PE 0603216F, Aerospace Propulsion and Power Technology, Project 4921, Aircraft Propulsion Subsystem Integration, to align resources with the Air Force Research Laboratory organization.</p>
0603203F Advanced Aerospace Sensors	<p>In FY 2002, Project 665A, Advanced Aerospace Sensors Technology efforts were transferred from PE 0603253F, Advanced Sensor Integration, Projects 2735, Avionics Integration Technology, and 666A, Sensor Fusion & Integration Tech.</p>
0603205F Flight Vehicle Technology	<p>In FY 2002, Project 2978, Flight Vehicle Technologies, transferred efforts to PE 0603211F, Aerospace Technology Development/Demo, Project 4920, Flight Vehicle Technology Integration.</p> <p>In FY 2002, Project 4398, Air Base Technology, transferred efforts to PE 0603112F, Advanced Materials for Weapon Systems, Project 4918, Deployed Air Base</p>

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0603211F Aerospace Technology Development/Demo	<p>In FY 2002, this PE was renamed Aerospace Technology Development/Demo (formerly Aerospace Structures). Not reflected in current documentation submission.</p> <p>In FY 2002, Project 4920, Flight Vehicle Technology Integration efforts were transferred from PE 0603205F, Flight Vehicle Technology, Project 2978, Flight Vehicle Technologies, and PE 0603245F, Flight Vehicle Technology Integration, Project 2568, Flight Vehicle Technology Integration. to align resources with the Air Force Research Laboratory</p>
0603216F Aerospace Prop and Power Technology	<p>In FY 2002, Project 4921, Aircraft Propulsion Subsystems Integration, efforts were transferred from PE 0603202F, Aircraft Propulsion Subsystem Integration, Project 668A, Aircraft Propulsion Subsystem Integration, to align projects with the Air Force Research Laboratory organization.</p> <p>In FY 2002, Project 4922, Space & Missile Rocket Propulsion, efforts were transferred from PE 0603302F, Space & Missile Rocket Propulsion, Project 6340, Satellite Control and Maneuvering Propulsion Technology, to align resources with the Air Force Research Laboratory organization.</p>
0603227F Personnel, Training and Simulation Technology	<p>In FY 2002, Project 2743, Advanced Training/Force Management, transferred efforts to PE 0603231F, Crew Systems and Personnel Protection Technology, Project 4924, Distributed Mission Training Technology, to align resources with the Air Force Research Laboratory organization.</p> <p>In FY 2002, Project 4923, Logistics Readiness and Sustainment, efforts were transferred from PE 0603106F, Logistics Systems Technology, Project 2745, Logistics Performance and Support Technology. to align resources with the Air Force Research Laboratory</p>
0603231F Crew Systems and Personnel Protection Technology	<p>In FY 2002, Project 4924, Distributed Mission Training Technology efforts were transferred from 0603227F, Personnel, Training and Simulation Tech, Project 2743, Advanced Training/Force Management, to align resources with the Air Force Research Laboratory organization.</p>
0603245F Flight Vehicle Technology Integration	<p>In FY 2002, Project 2568, Flight Vehicle Technology Integration, transferred efforts to PE 0603211F, Aerospace Technology Development/Demo, Project 4920, Flight Vehicle Tech Integration.</p>

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0603253F Advanced Sensor Integration	In FY 2002, Projects 2735, Avionics Integration Technology, and 666A, Sensor Fusion & Integration Tech, transferred efforts to PE 0603203F, Advanced Aerospace Sensors, Project 665A, Advanced Aerospace Sensors Technology.
0603302F Space & Missile Rocket Propulsion	<p>In FY 2002, all rocket propulsion technology efforts performed in Project 6340, Satellite Control and Maneuvering Propulsion Technology, transferred to PE 0603216F Aerospace Prop and Power Technology, Project 4922, Space & Missile Rocket Propulsion, to align resources with the Air Force Research Laboratory organization.</p> <p>In FY 2002, Project 6339, Tactical Propulsion Technology, was terminated.</p>
0603401F Advanced Spacecraft Technology	<p>In FY 2002, Project 4400, Space Systems Protection, efforts were transferred from PE 0603410F, Space Systems Environmental Interactions Technology, Project 2822, Space Environmental Impact Tests, to align resources with the Air Force Research Laboratory organization.</p> <p>In FY 2002, Project 4938, Space Developmental Planning, includes new start efforts.</p>
0603410F Space Systems Environmental Interactions Technology	In FY 2002, Project 2822, Space Environmental Impact Tests, transferred efforts to PE 0603401F, Advanced Spacecraft Technology, Project 4400, Space Systems Protection, to align resources with the Air Force Research Laboratory organization.
0603601F Conventional Weapons	In FY 2002, Project 63670B was separated from Project 670A for clarity in describing the different technology development and demonstration programs.
0603726F Aerospace Info Tech Sys Integration	<p>In FY 2002, Project 2810, Advanced Image/Information/Optical Memory Technology Applications, transferred efforts to Project 4072, Dominant Battlespace Awareness, PE 0603789F, C3I Advanced Development, to align resources with the Air Force Research Laboratory organization.</p> <p>In FY 2002, Project 4850, Collaborative C2, transferred efforts to Project 4925, Collaborative C2, PE 0603789F, C3I Advanced Development, to align resources with the Air Force Research Laboratory organization.</p>

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0603789F C3I Advanced Development	<p>In FY 2002, Project 4072, Dominant Battlespace Awareness, efforts were transferred from PE 0603726F, Aerospace Info Tech Sys Integration, Project 2810, Advanced Image/Information/Optical Memory Technology Applications, to align resources with the Air Force Research Laboratory organization.</p> <p>In FY 2002, Project 4925, Collaborative C2, efforts were transferred from PE 0603726F, Aerospace Info Tech Sys Integration, Project 4850, Collaborative C2, to align resources with the Air Force Research Laboratory organization.</p>
0603876F Space Based Laser	<p>In FY 2002, all funding was transferred to the Ballistic Missile Defense Organization (BMDO) program.</p>
BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION	
0603319F Airborne Laser Program	<p>In FY 2002, all funding was transferred to the Ballistic Missile Defense Organization (BMDO) program.</p>
0603421F Global Positioning System	<p>In FY 2002, this is a new PE. In FY 2002, Project 4993, GPS Block III efforts transferred from PE 0603421F, NAVSTAR Global Positioning System, Project 3030, Navstar GPS Space & Control.</p>
0603434F NPOESS (Space)	<p>In FY 2002, Project 4056, NPOESS, includes new start efforts.</p> <p>In FY 2002, Project 4056, NPOESS, several efforts were terminated.</p>
0603438F Space Control Technology	<p>In FY 2002, Project 2611, Technology Insertion Plan & Analysis, includes new start</p> <p>In FY 2002, Project 2611, Technology Insertion Plan, transferred efforts to PE 0305935F, Space Control, Project 4929, Space Control Technology.</p>
0603617F Command, Control and Communication	<p>In FY 2002, this Program has been terminated.</p>
0603851F ICBM - DEM/VAL	<p>In FY 2002, Project 1021, ICBM Propulsion Applications, and Project 1024, ICBM Command & Control (C2) Applications, include new efforts.</p>
0603854F Wideband Gapfiller System (RDT&E) Space	<p>In FY 2002, Project 2679, Global Broadcast Service (GBS), efforts were transferred to PE 0603840F, Global Broadcast Service (GBS), Project 4887, Global Broadcast Service.</p>

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
BUDGET ACTIVITY 5: ENGINEERING AND MANUFACTURING DEVELOPMENT	
0207701F Full Combat Mission Training	<p>In FY 2002, this is a new PE. In FY 2002, Project 5012, Distributed Mission Training, efforts transferred from PE 0604227F, Distributed Mission Training (DMT), Project 4673, Distributed Mission Training, to provide more effective program management and</p> <p>In FY 2002, Project 5012, Distributed Mission Training efforts were transferred from PE 0604227, Distributed Mission Training (DMT), Project 4673, Distributed Mission Training, to provide more effective program management and oversight.</p>
0401318F CV-22	In FY 2002, this is a new PE. In FY 2002, Project 4103, CV-22, includes new start efforts.
0603840F Global Broadcast Service (GBS)	This is a new PE in FY 2002. In FY 2002, Project 4887, Global Broadcast Service, efforts transferred from PE 0603854 Wideband Gapfiller System (RDT&E) Space, Project 2679, Global Broadcast Service (GBS).
0604840F EW Development	In FY 2002, Project 2462, Compass Call (CC), transferred efforts to PE 0207253, Compass Call (CC), Project 4804 Compass Call (CC).
0604227F Distributed Mission Training (DMT)	In FY 2002, Project 4673, Distributed Mission Training, transferred efforts to PE 0207701F, Full Combat Mission Training, Project 5012, Distributed Mission Training, to provide more effective program management and oversight.
0604240F B2 Advanced Technology Bomber	In FY 2002, Project 3843, B-2 (ATB), includes new start efforts.
0604251F Space Based Radar EMD	In FY 2002, Project 5009, SBR Concept and Tech Development, includes new start efforts.
0604328F Extended Range Cruise Missile (ERCM)	In FY 2002, this is a new PE. In FY 2002, Project 4978, ERCM, includes new start efforts.
0604329F Small Diameter Bomb (SBD)	In FY 2002, this is a new PE. In FY 2002, Project 5006, Small Diameter Bombs (SBD), includes new start efforts.
0604602F Armament/Ordnance Development	In FY 2002, Project 3133, Bombs and Fuzes, includes new start efforts.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0604617F Agile Combat Support	<p>In FY 2002, Project 2895, Civil Engineering Readiness, efforts were transferred from PE 0208031F, War Reserve Material - Equipment/Secondary Items, Project 4668, Shelter Development, to provide a more manageable CE Readiness effort.</p> <p>In FY 2002, Project 4910, Aeromedical Readiness, efforts were transferred from PE 0604703F, Aeromedical Systems Development, Project 2866, Aeromedical/Casualty Care Sys Development, to provide a more manageable CE Readiness effort.</p>
0604703F Aeromedical Systems Development	<p>In FY 2002, Project 2866, Aeromedical/Casualty Care Sys Development transferred efforts to PE 0604617F Agile Combat Support, Project 4910, Aeromedical Readiness, to provide a more manageable CE Readiness effort.</p>
0604735F Combat Training Ranges	<p>In FY 2002, Project 2286, Combat Training Ranges Equipment, includes new start efforts.</p>
0604800F Joint Strike Fighter EMD	<p>In FY 2002, Project 3831, Joint Strike Fighter, efforts were transferred from PE 0603800F, Joint Strike Fighter, Project 2025, Joint Strike Fighter.</p>
0604805F DUAP Commercial Operations & Support Savings Initiative	<p>In FY 2002, this Program has been terminated.</p>
0604851F ICBM - EMD	<p>In FY 2002, Project 4371, Safety Enhanced Reentry Vehicle (SERV), Project 5007, Global Positioning System (GPS) Metric Tracking Program, and Project 133B, Rapid Execution and Combat Targeting (REACT) Replacement, include new start efforts.</p>
BUDGET ACTIVITY 6: MANAGEMENT AND SUPPORT	
0604256F Threat Simulator Development	<p>In FY 2002, Project 3321, EW Ground Test Resources, includes new start efforts.</p>
0604759F Major Test and Evaluation Investment	<p>In FY 2002, Project 4597, AF Test Investments, includes new start efforts.</p>
0605807F Test & Evaluation Support	<p>In FY 2002, Project 06TS, Test & Evaluation Support, includes new start efforts.</p>
0605860F RSLP (Space)	<p>In FY 2002, Project 1023, Rocket System Launch Program (RSLP), includes new start efforts.</p>
0804731F General Skill Training	<p>In FY 2002, this is a new PE. In FY 2002, Project 4980, R&D Computer Forensic Analyst Tools, includes new start efforts.</p>

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT	
0203761F Warfighter Rapid Acquisition Process	<p>In FY 2002, this is a new PE. In FY 2002, Project 4936, Warfighter Rapid Acquisition Process, efforts were transferred from PE 0207027F, AC2ISR, Project 4814, Expeditionary Force Experiment (EFX).</p> <p>In FY 2002, Project 4936, Warfighter Rapid Acquisition Process, includes new start efforts.</p>
0207027F AC2ISR	<p>In FY 2002, Project 4814, Expeditionary Force Experiment (EFX), transferred efforts to 0203761F, Warfighter Rapid Acquisition Process, Project 4936, Warfighter Rapid Acquisition Process.</p> <p>In FY 2002, Project 4814, Expeditionary Force Experiment (EFX), transferred efforts to 0207028F, Joint Expeditionary Force Experiment, Project 4373, Joint Expeditionary Force Experiment, and Project 4991, Joint Distributed Engineering Plant (JDEP).</p> <p>In FY 2002, Project 4478, Command, Control, Computer & Intelligence Enhancement efforts transferred to PE 0208060F Theatre Missile Defense, Project 4372, Time Critical</p>
0207028F Joint Expeditionary Force Experiment	<p>In FY 2002, this is a new PE. In FY 2002, Project 4373, Joint Expeditionary Force Experiment, and Project 4991, Joint Distributed Engineering Plant (JDEP) include efforts transferred from PE 0207027F, AC2ISR., Project 4814, Expeditionary Force Experiment (EFX).</p>
0207138F F-22 Squadrons	<p>In FY 2002, this is a new PE. In FY 2002, Project 4785, F-22, includes new start efforts.</p>
0207253F Compass Call	<p>In FY 2002, Project 4804, Compass Call (CC), efforts were transferred from PE 064805F, EW Development, Project 2462, Compass Call (CC).</p>
0207277F CSAF Innovation Program	<p>In FY 2002, this is a new PE. In FY 2002, Project 4931, Eagle Vision, efforts were transferred from PE 0305208F, Project 4826, Common Imagery Ground/Surface Systems.</p>

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0207410F Aerospace Operations Center (AOC)	In FY 2002, this is a new PE. In FY 2002, Project 4372, Time Critical Targeting, efforts were transferred from PE 0208060, Theatre Missile Defense, Project 4478, Command, Control, Communication, Computer and Intelligence Enhancement.
0207417F Airborne Warning & Control System	In FY 2002, Project 411L, Airborne Warning & Control System, includes new start efforts.
0207423F Advanced Communications System	In FY 2002, Project 4934, Tactical Air Control Party (TACP), includes new start efforts. In FY 2002, Project 1013, Theater Deployable Communications, was terminated. In FY 2002, Project 2982, Anti-Jam Radio Communications, was terminated.
0207438F Theater Battle Management (TMD) C4I	In FY 2002, Project 4821, Distributed Common Ground System Interoperability, efforts were transferred to Project 4826, Common Imagery Ground/Surface Systems.
0207581F Joint Stars	In FY 2002, Project 0003, JSTARS, includes new start efforts.
0207601F USAF Modeling and Simulation	In FY 2002, Project 5005, EA for Air/Space Natural Environment (ANSE) efforts were transferred from PE 0308601F, Modeling and Simulation Support, Project 4566, EA for Air/Space Natural Environment (ANSE), to provide a more manageable Modeling, Simulation, and Analysis effort. In FY 2002, Project 5004, Joint Model Transition (JMT) efforts were transferred from PE 0308601F, Modeling and Simulation Support, Project 1011, Legacy Model Transition (LMT), to provide a more manageable Modeling, Simulation, and Analysis effort.
0208031F War Reserve Materials - Equipment/Secondary Items	In FY 2002, Project 4468, Shelter Development, efforts were transferred to PE 0604617F, Agile Combat Support, Project 2895, Civil Engineering Readiness.
0208060F Theater Missile Defense	In FY 2002, Project 4478, Command, Control, Computers & Intelligence Enhancement, transferred efforts to PE 0207410F, Aerospace Operation Center (AOC), Project 4372, Time Critical Targeting.
032015F E-4B National Airborne Operations Center	In FY 2002, Project 4777, E-4B Aircraft Modernization, includes new start efforts.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0303131F Minimum Emergency Communications Network (MEECN)	In FY 2002, Project 4521, DIRECT, includes new start efforts.
0303141F Global Combat Support System	<p>In FY 2002, Project 4655, Integrated Log Sys-Supply (ILS-S) efforts were separated into six projects within the same PE to provide a more efficient and manageable program.</p> <p>In FY 2002, Project 4928, Electronic Business/Electronic Commerce, includes new start efforts.</p>
0303601F MILSATCOM Terminals	In FY 2002, Project 2487, MILSATCOM Terminals, includes new start efforts.
0305165F NAVSTAR GPS	In FY 2002, Project 3030, Navstar GPS Space & Control, transferred efforts to PE 0603421F, NAVSTAR Global Positioning System, Project 4993, GPS Block III.
0305202F Dragon U-2 (JMIP)	In FY 2002, efforts in Project 4818, Imaging and Targeting System transferred to Project 4945, High Altitude Systems, within the same PE.
0305205F Endurance Unmanned Aerial Vehicle	In FY 2002, Project 4755, Predator, includes new start efforts.
0305206F Airborne Reconnaissance Systems	In FY 2002, Project 4817, Joint Sigint Avionics Family (JSAF), efforts were terminated.
0305906F NCMC - TW/AA Systems	In FY 2002, Project 3881, Integrated TW/AA, transferred efforts to Project 4806, N/UWSS NORAD/USSPACECOM Warfight Sys, within the same PE.
0305910F SPACETRACK (Space)	In FY 2002, Project 4930, Space Based Space Surveillance, and Project 5010, Space Situational Awareness Initiatives, include new start efforts.
0305935F Space Control	In FY 2002, Project 4929, Space Control Technology, transferred efforts to PE 0603438F, Space Control Technology, Project 2611, Technology Insertion Plan & Analysis.

PROGRAM ELEMENT COMPARISON SUMMARY

INTRODUCTION AND EXPLANATION OF CONTENTS

Program Element	Remarks
0308601F Modeling and Simulation Support	<p>In FY 2002, Project 4566, EA for Air/Space Natural Environment (ANSE), transferred efforts to PE 0207601F, USAF Modeling and Simulation, Project 5005, EA for Air/Space Natural Environment (ANSE), to provide a more manageable Modeling, Simulation, and Analysis effort.</p> <p>In FY 2002, Project 1011, Legacy Model Transition (LMT), transferred efforts to PE 0207601F, USAF Modeling and Simulation, Project 5004, Joint Model Transition (JMT), to provide a more manageable Modeling, Simulation, and Analysis effort.</p>
0401130F C-17 Aircraft	<p>In FY 2002, Project 4886, LAIRCM, transferred efforts to PE 0401134F, Large Aircraft IR Countermeasures, Project 4885, LAIRCM.</p> <p>In FY 2002, Project 2569, C-17, includes new start efforts.</p>
0401134F Large Aircraft IR Countermeasures	<p>In FY 2002, this is a new PE. In FY 2002, Project 4885, LAIRCM, efforts transferred from PE 0401130F, C-17 Aircraft, Project 4886, LAIRCM.</p>
0401218F KC-135S	<p>In FY 2002, Project 4494, KC-135 Aging Aircraft Program, includes new start efforts.</p>

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	4,048	4,360	4,482	4,574	4,669	4,767	4,868	4,971	Continuing	TBD
3479 Advanced Sensor Exploitation	794	772	821	822	839	855	873	892	Continuing	TBD
3480 Automated Imagery Exploitation	1,282	1,244	1,321	1,320	1,348	1,376	1,405	1,434	Continuing	TBD
3481 Knowledge Based Tech For Intelligence	876	1,275	1,351	1,361	1,389	1,419	1,450	1,480	Continuing	TBD
3482 Science & Tech Intelligence Methodology	1,096	1,069	989	1,071	1,093	1,117	1,140	1,165	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 (U) Intelligence Advanced Development (IAD) demonstrates and validates advanced technology required to support warfighter needs for timely all source intelligence information. IAD research supports global awareness, consistent battlespace knowledge, precision information, and the execution of time critical missions. IAD projects provide better on-time information to the warfighter using new and existing data sources, streamline data analysis, reduce footprint required, extend life of sensors in place and enhance performance. Air Force Research Lab Rome Research Site (AFRL/IFE) works directly with users, employing a rapid prototyping evolutionary approach, integrating finished modules directly into the field. The programs are oriented toward specific shortfalls and deficiencies as documented by the major commands (MAJCOMS), unified commands, and intelligence organizations in their mission and function area plans. The goal of this program is to expedite technology transition from the laboratory to operational use via rapid prototyping. This AF program is focused on technology insertion to correct AF intelligence deficiencies at tactical or operation levels. This program bridges the transition of Advance Technology Demonstrations (ATDs), Integrated Technology Thrust Programs (ITTPs), and supports Defense Technology Objectives (DTOs).

(U) **B. Budget Activity Justification**
 This program is in Demonstration and Validation, Budget Activity 4, because it demonstrates and validates advanced technology which enhances information / intelligence systems' capabilities and techniques.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
BUDGET ACTIVITY		PE NUMBER AND TITLE		
04 - Demonstration and Validation		0603260F Intelligence Advanced Development		
(U) C. Program Change Summary (\$ in Thousands)				
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
	<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)	4,534	4,401	4,455
(U)	Appropriated Value	4,534	4,401	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions			
	b. Small Business Innovative Research	-136		
	c. Omnibus or Other Above Threshold Reprogram			
	d. Below Threshold Reprogram	-332		
	e. Rescissions	-18	-41	
(U)	Adjustments to Budget Years Since FY 2001 PBR			27
(U)	Current Budget Submit/FY 2002 PBR	4,048	4,360	4,482
(U)	<u>Significant Program Changes:</u>			
				TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT 3479	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3479 Advanced Sensor Exploitation	794	772	821	822	839	855	873	892	Continuing	TBD
FY03-FY07 budget numbers do not reflect the DoD strategic review results.										
(U) <u>A. Mission Description</u>										
The project objectives are to develop, demonstrate and evaluate a near-real-time all source correlation/fusion capability by applying state-of-the-art data processing techniques for the receipt, correlation, templating and analysis of battlefield information. Capabilities will be developed in open systems architecture environment allowing for the greatest efficiency in terms of integrating or interfacing with other systems. There is an Air Force, DoD and Coalition need to correlate various sources of intelligence information (Communications Intelligence - COMINT, Electronic Intelligence - ELINT, Image Intelligence - IMINT) within seconds as opposed to hours with current manual methods. Project includes development of data correlation and predictive intelligence algorithms, target analysis and prioritization, air order of battle updates and tactical analysis techniques. This computerized approach will speed up the correlation of data from diverse sources of intelligence information, including COMINT, ELINT, and IMINT; providing faster situational awareness and threat assessment and replace manual systems with automated capabilities.										
(U) <u>FY 2000 (\$ in Thousands)</u>										
(U) \$794 Completed Network Centric Information Fusion to support Dynamic Planning and Execution										
(U) \$794 Total										
(U) <u>FY 2001 (\$ in Thousands)</u>										
(U) \$247 Initiated Time Sensitive Target Nominations (TSTN)										
(U) \$427 Initiated Enhanced Intel Prep of the Battlespace (EIPB)										
(U) \$98 Initiated Moving Target Exploitation (MTE) Tracking Enhancements										
(U) \$772 Total										
The following net transactions are not reflected in the FY01 program total: SBIR= -134 K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.										
(U) <u>FY 2002 (\$ in Thousands)</u>										
(U) \$302 Continue Time Sensitive Target Nominations (TSTN)										
(U) \$352 Continue Enhanced Intel Prep of the Battlespace (EIPB)										
(U) \$167 Continue Moving Target Exploitation (MTE) Tracking Enhancements										
(U) \$821 Total										
Project 3479										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																						
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3479																																																																																																					
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Project 3479			Page 4 of 18 Pages				Exhibit R-2A (PE 0603260F)																																																																																																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3479			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		
(U)	Time Sensitive Target Nominations						247		302		
(U)	Enhanced Intel Prep of the Battlespace						427		352		
(U)	Moving Target Exploitation (MTE) Tracking Enhancements						98		167		
(U)	Network Centric Information Fusion				794						
(U)	Total				794		772		821		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	PRC	CPFF	27Feb 01				247	302		Continuing	TBD
	Zel-Tech	CPFF	6 Mar 01				427	352		Continuing	TBD
	Northrup-Grumman	CPFF	20 Dec 00				98	167		Continuing	TBD
<u>Support and Management Organizations</u>											
	N/A										
<u>Test and Evaluation Organizations</u>											
	N/A										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	N/A										
<u>Support and Management Property</u>											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
04 - Demonstration and Validation		June 2001				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
(U) <u>Government Furnished Property Continued:</u> <u>Test and Evaluation Property</u>	0603260F Intelligence Advanced Development	3479				
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Product Development				772	821	TBD
Subtotal Support and Management						TBD
Subtotal Test and Evaluation						TBD
Total Project				772	821	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development						PROJECT 3480	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
3480 Automated Imagery Exploitation	1,282	1,244	1,321	1,320	1,348	1,376	1,405	1,434	Continuing	TBD	
FY03-FY07 budget numbers do not reflect the DoD strategic review results.											
(U) A. Mission Description											
This project demonstrates and validates the capability to more accurately and quickly interpret digital imagery and video by evaluating computer-assisted techniques to manipulate and overlay imagery, cartographic data, signal intelligence (SIGINT), and on-line intelligence data. The result of this effort will be more precise target locations and identifications, precise target reference scenes, and more accurate damage assessments; all developed for easy supportability on low-cost, commercially-available computer workstations.											
(U) FY 2000 (\$ in Thousands)											
(U) \$680	Continued Multi-Sensor Intel Exploitation Applications for GCCS (Previously entitled Distributed Imagery Information Systems Integration in support of Information Superiority [Phases 3, 4, and 5])										
(U) \$602	Initiated Hyper-Spectral Imagery Exploitation Tools (previous entitled Multi-Spectral/Hyper Spectra-1 Image Exploitation Applications)										
(U) \$1,282	Total										
(U) FY 2001 (\$ in Thousands)											
(U) \$97	Initiate NATO Secondary Imagery Interoperability										
(U) \$148	Initiate eXploitation Tools for Video (XTV)										
(U) \$229	Initiate Smart Digital Imagery & Video Exploitation Tools										
(U) \$348	Continue Multi-Sensor Intel Exploitation Applications for GCCS										
(U) \$422	Continue Hyper-Spectral Image Exploitation										
(U) \$1,244	Total										
(U) FY 2002 (\$ in Thousands)											
(U) \$202	Continue NATO Secondary Imagery Interoperability										
(U) \$252	Continue eXploitation Tools for Video (XTV)										
(U) \$249	Continue Smart Digital Imagery & Video Exploitation Tools										
(U) \$188	Continue Multi Sensor Intel Exploitation Applications for GCCS										
(U) \$430	Complete Hyper-Spectral Image Exploitation										
Project 3480			Page 7 of 18 Pages				Exhibit R-2A (PE 0603260F)				

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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$1,321 Total</p> <p>(U) <u>B. Project Change Summary</u> Not Applicable</p> <p>(U) <u>C. 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BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603260F Intelligence Advanced Development			3480		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Multi Sensor Intel Exploitation Apps for GCCS				680		348		188	
(U)	NATO Second Imagery Interoperability						97		202	
(U)	eXploitation Tools for Video						148		252	
(U)	Smart Digital Imagery						229		249	
(U)	Hyper-Spectral Image Exploitation				602		422		430	
(U)	Total				1,282		1,244		1,321	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
PAR, Inc.	CPFF	6 Apr 01					97	202	Continuing	TBD
PRC	CPFF	1 Jun 01					148	252	Continuing	TBD
Research Foundation, U. of Binghamton	Grant	8 Nov 00					229	249	Continuing	TBD
PAR, Inc.	CPFF	11 May 98			680	348	188		Continuing	TBD
PAR, Inc.	CPFF	11 Feb 00			602	422	430		Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3480		
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
N/A									
<u>Support and Management Property</u>									
N/A									
<u>Test and Evaluation Property</u>									
N/A									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					1,282	1,244	1,321	TBD	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project					1,282	1,244	1,321	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT 3481	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
3481 Knowledge Based Tech For Intelligence	876	1,275	1,351	1,361	1,389	1,419	1,450	1,480	Continuing	TBD	
FY03-FY07 budget numbers do not reflect the DoD strategic review results.											
(U) <u>A. Mission Description</u> This project will improve Global Awareness, Dynamic Planning and Execution, providing knowledge bases and inference engines to exploit collected data for nine major commands on AF intelligence organizations. The development of the analytical aids is based on artificial intelligence techniques. The increased timeliness, efficiency and effectiveness derived will provide warning time and accuracy, allowing national/military authorities a greater range of options to avert, diminish or control a crisis.											
(U) <u>FY 2000 (\$ in Thousands)</u>											
(U) \$272 Completed Machine Learning Prototype, expert system, and neural network technologies to support real-time analysis of timelines											
(U) \$302 Completed Multimedia for Information Access for analysts at AIA and users of imagery											
(U) \$302 Completed Intelligence Application Browser Interfaces for warfighters and analysts at ACC and AIA											
(U) \$876 Total											
(U) <u>FY 2001 (\$ in Thousands)</u>											
(U) \$668 Initiate Broadsword Enhancements											
(U) \$607 Initiate Secure Information Delivery Trusted Transfer Agent (TTA)											
(U) \$1,275 Total											
(U) <u>FY 2002 (\$ in Thousands)</u>											
(U) \$674 Continue Secure Information Delivery Trusted Transfer Agent (TTA)											
(U) \$677 Continue Broadsword Enhancements											
(U) \$1,351 Total											
(U) <u>B. Project Change Summary</u> Not Applicable											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001						
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development				PROJECT 3481					
(U) C. Other Program Funding Summary (\$ in Thousands)													
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U) Related Activities:													
0602720F C3I Exploratory Development: information exploitation (imagery/video/text), multi-sensor collaboration, global information base.													
0603789F C3 Advanced Technology Development: correlation, fusion algorithms, visualization.													
0603726F C3 Subsystem Integration: advanced information technology, advanced memory technology.													
0604750F Intelligence Equipment: modeling and simulation, foreign threat assessment.													
0301335F Intelligence Data Handling: enhances DoD Intelligence Information Systems (DoDIIS).													
(U) D. Acquisition Strategy													
All major contracts within this Program Element were awarded after full and open competition.													
(U) E. Schedule Profile													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U) Completed Machine Learning Prototype					*								
(U) Completed Multimedia for Info Access					*								
(U) Completed Intel Application Browser Interface					*								
(U) Initiated Broadsword Enhancements						*							
(U) Initiated Secure Information Delivery						*							
(U) Trusted Transfer Agent (TTA)											X		
* - Denotes completed event													
X - Denotes planned event													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3481		
(U) A. Project Cost Breakdown (\$ in Thousands)					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U)	Enhancing Intelligence Analysts Productivity				272					
(U)	Machine Learning Prototype				302					
(U)	Multimedia for Information Access				302					
(U)	Intelligence Applications Browser Interfaces									
(U)	Broadword Enhancements					668				677
(U)	Secure Information Delivery TTA						607			674
(U)	Total				876		1,275			1,351
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Booz Allen	CPFF	Jun 96			272				0	272
Kaman Science	CPFF	May 96			302				0	302
Synectics Corp	CPFF	Jul 96			302				0	302
Synectics Corp	CPFF	3 Nov 00					668	674	Continuing	TBD
Sterling Software	CPFF	TBD					607	677	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3481		
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
N/A									
<u>Support and Management Property</u>									
N/A									
<u>Test and Evaluation Property</u>									
N/A									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					876	1,275	1,351	TBD	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project					876	1,275	1,351	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603260F Intelligence Advanced Development					PROJECT 3482	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3482 Science & Tech Intelligence Methodology	1,096	1,069	989	1,071	1,093	1,117	1,140	1,165	Continuing	TBD
FY03-FY07 budget numbers do not reflect the DoD strategic review results.										
(U) A. Mission Description										
Demonstrates and validates intelligence methodologies and techniques for operational employment of simulation models in support of Air Intelligence Agency (AIA) requirements. The methods and techniques will help AIA improve their analysis of current and future foreign weapon systems, and prevent technological surprises with regard to the capabilities of these systems.										
(U) FY 2000 (\$ in Thousands)										
(U) \$614	Continued Intelligence Analyst Associate (Build 2) for Automated Information Extraction									
(U) \$231	Continued Missile System Reentry Vehicle Algorithm Enhancements for NAIC									
(U) \$251	Continued Radio Frequency Weapons Modeling Improvements (HEIMDAL2+) (includes Laser Weapons Modeling Code (LODUR). (Reference companion PE 64750, Intelligence Equipment.)									
(U) \$1,096	Total									
(U) FY 2001 (\$ in Thousands)										
(U) \$437	Complete Intelligence Analyst Associate (Build 2) for Automated Information Extraction									
(U) \$48	Continue Missile System Reentry Vehicle Algorithm Enhancements for NAIC									
(U) \$48	Completed Radio Frequency Weapons Modeling Improvements (HEIMDAL2+) (includes Laser Weapons Modeling Code (LODUR). (Reference companion PE 64750, Intelligence Equipment.)									
(U) \$339	Initiate Dynamic Info Operations Development Environment (DIODE)									
(U) \$197	Initiate Tel-Scope Situation Awareness									
(U) \$1,069	Total									
(U) FY 2002 (\$ in Thousands)										
(U) \$586	Continue Dynamic Info Operations Development Environment (DIODE)									
(U) \$0	Transition Missile System Reentry Vehicle Algorithm Enhancements for NAIC to PE 64750									
(U) \$0	Transition HEIMDAL2+ and LODUR to PE64750									
(U) \$403	Continue Tel-Scope Situation Awareness									
Project 3482										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT					
04 - Demonstration and Validation				0603260F Intelligence Advanced Development			3482					
(U) A. Mission Description Continued												
(U) <u>FY 2002 (\$ in Thousands) Continued</u>												
(U) \$989 Total												
(U) B. Project Change Summary												
Not Applicable												
(U) C. Other Program Funding Summary (\$ in Thousands)												
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U) Related Activities:												
0602720F C3I Exploratory Development: information exploitation (image/video/text), multi-sensor collaboration, global information base.												
0603789F C3 Advanced Technology Development: correlation, fusion algorithms, visualization.												
0603726F C3 Subsystem Integration: advanced information technology, advanced memory technology.												
0604750F Intelligence Equipment: modeling and simulation, foreign threat assessment.												
0301335F Intelligence Data Handling: enhances DoD Intelligence Information Systems (DoDIIS).												
(U) D. Acquisition Strategy												
All major contracts within this Program Element were awarded after full and open competition.												
(U) E. Schedule Profile												
		<u>FY 2000</u>				<u>FY 2001</u>			<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Transition Radio Frequency Modeling (HEIMDAL) & LODUR to PE 64750												
									X			
(U) Transition Missile Sys RV Algorithm Enhancement to PE 64750												
									X			
(U) Initiated Tel-Scope Situation Awareness												
						*			X			
(U) Initiated DIODE Dynamic Info Operations Development Environment												
						*						
(U) Complete Intel Analyst Associate (Build 2)												
									X			
* - Denotes completed event												
X - Denotes planned event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603260F Intelligence Advanced Development			PROJECT 3482		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Intelligence Analysts Associate (Build 2)				614		437			
(U)	Missile System Reentry Vehicle Algorithm Enhancement				231		48			
(U)	DIODE						339			586
(U)	Tel-Scope						197			403
(U)	Radio Frequency Weapons Modeling				251		48			
(U)	Total				1,096		1,069			989
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Obligation Date</u>	<u>Activity EAC</u>	<u>Office EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Calspan	CPAF	26 Sep 96				614	437		0	1,051
SAIC	IDIQ	1 Jul 99				231	48		0	279
Calspan	CPFF	31 Jul 98				251	48		0	299
PRC, Inc	CPFF	1 Dec 00					339	586	Continuing	TBD
PRC, Inc	CPFF	1 Feb 01					197	403	Continuing	TBD
<u>Support and Management Organizations</u>										
N/A										
<u>Test and Evaluation Organizations</u>										
N/A										
(U) <u>Government Furnished Property:</u>										
<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Description</u>	<u>or Funding Vehicle</u>	<u>Obligation Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
							June 2001	
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation				0603260F Intelligence Advanced Development			3482	
(U) Government Furnished Property Continued:								
	<u>Contract</u>	<u>Award or</u>						
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Description</u>	<u>Vehicle</u>							<u>Program</u>
<u>Product Development Property</u>								
N/A								
<u>Support and Management Property</u>								
N/A								
<u>Test and Evaluation Property</u>								
N/A								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
Subtotal Product Development					1,096	1,069	989	TBD
Subtotal Support and Management								
Subtotal Test and Evaluation								
Total Project					1,096	1,069	989	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603319F Airborne Laser Technology					PROJECT 4269		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4269	Airborne Laser	311,365	231,494	0	0	0	0	0	0	0	TBD
	Quantity of RDT&E Articles	1	0	0	0	0	1	0	0	0	TBD
<p>- Beginning in FY02 all outyear funding for ABL were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.</p> <p>- Quantity of RDT&E Articles total includes purchase of a commercial 747-400F aircraft for the PDRR phase only. The PDRR commercial 747-400F aircraft was purchased in FY 1998 and was delivered in January, 2000</p> <p>(U) <u>A. Mission Description</u> The Airborne Laser (ABL) Program is an Acquisition Category 1D (ACAT 1D) program to design, build and test a laser weapon system to acquire, track and kill Theater Ballistic Missiles (TBMs) in the boost phase. This weapon system integrates three major subsystems (Laser, Beam Control, and Battle Management Command, Control, Communications, Computers and Intelligence (BMC4I)) into a modified commercial Boeing 747-400F aircraft. It also includes ABL-specific ground support. The program awarded the ABL PDRR (Program Definition Risk Reduction) contract to the Boeing/TRW/ Lockheed-Martin team in November 1996, to design, fabricate, integrate, and test a half-power ABL system. An Authority-to-Proceed (ATP-1) decision point was successfully attained in FY 1998. As a result of OSD direction, FY02 and outyear funding for ABL were transferred to the Ballistic Missile Defense Organization (BMDO). The Acquisition Category and Mission Designation are being reviewed by BMDO with OSD and the Air Force.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$209,378 Continued Boeing/TRW/Lockheed-Martin PDRR contract effort for design, fabrication, integration, and testing of the ABL weapon system, including design of a System Integration Laboratory (SIL) at the Birk Flight Test Facility at Edwards AFB, CA</p> <p>(U) \$78,390 Final PDRR commercial aircraft payment (aircraft delivery)</p> <p>(U) \$4,670 Continued support for special studies, simulations and analyses, technical support, risk management, and an independent review team specializing in lasers, aircraft, and aircraft integration</p> <p>(U) \$18,927 Continued support for labor, training, IPT (Integrated Product Team) participation, and other government agencies; conducted overseas star scintillometer campaign</p> <p>(U) \$311,365 Total</p> <p>The Air Force added an additional \$14.462 million to the FY01 budget as part of an effort to fund shortfalls in the ABL program.</p>											
Project 4269		Page 1 of 6 Pages					Exhibit R-2 (PE 0603319F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																		
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603319F Airborne Laser Technology	PROJECT 4269																																																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$202,828 Continue Boeing/TRW/Lockheed-Martin PDRR contract effort for design, fabrication, integration, and testing of the ABL weapon system, including design and development of the SIL at the Birk Flight Test Facility at Edwards AFB, CA</p> <p>(U) \$5,577 Continue support for special studies, simulations and analyses, technical support, risk management, and an independent review team specializing in lasers, aircraft, and aircraft integration</p> <p>(U) \$23,089 Continue support for labor, training, environmental studies, IPT participation, purchase of targets as GFP, and other government agency support requirements.</p> <p>(U) \$231,494 Total</p> <p>Congress added \$85.0 million to the FY01 appropriation. The following net transaction is not reflected in teh FY01 program total: BTR= \$1.635 million. This transaction is not reflected in other sections of the R-Docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 All FY02 and outyear funding for ABL were transferred to BMDO per OSD direction.</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 4 (BAC-4) - Demonstration and Validation; ABL is a major defense acquisition program and was authorized to enter PDRR at Milestone I in November 1996.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 20%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">304,184</td> <td style="text-align: right;">148,637</td> <td style="text-align: right;">140,673</td> <td style="text-align: right;">1,418,704</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">308,634</td> <td style="text-align: right;">233,637</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-1,985</td> <td style="text-align: right;">-1,635</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-6,919</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-1,620</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-1,207</td> <td style="text-align: right;">-508</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td style="text-align: right;">14,462</td> <td style="text-align: right;">0</td> <td style="text-align: right;">-140,673</td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	304,184	148,637	140,673	1,418,704	(U) Appropriated Value	308,634	233,637			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-1,985	-1,635			b. Small Business Innovative Research	-6,919				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-1,620				e. Rescissions	-1,207	-508			(U) Adjustments to Budget Years Since FY 2001 PBR	14,462	0	-140,673	
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																
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Project 4269	Page 2 of 6 Pages	Exhibit R-2 (PE 0603319F)																																																		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603319F Airborne Laser Technology						PROJECT 4269	
(U) C. Program Change Summary (\$ in Thousands) Continued												
					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>				<u>Total Cost</u>	
(U)	Current Budget Submit/FY 2002 PBR				311,365	231,494	0				TBD	
(U)	<u>Significant Program Changes:</u> Congress added \$85.0 million to the FY01 appropriation. As a result of OSD direction, all FY02 and outyear funding for ABL were transferred to the Ballistic Missile Defense Organization (BMDO).											
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	AF RDT&E											
(U)	Other APPN											
	Note 1 -Beginning in FY02 all ABL outyear funding was transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction. The specific PEs are still being determined.											
	Note 2 - PE 0603605F, Advanced Weapons - supports ABL by developing technologies for potential performance enhancements above current requirements identified in ABL Operational Requirements Document (ORD).											
(U) E. Acquisition Strategy												
	Milestone (MS) I decision was November 1996 authorizing entry into PDRR. MS II for EMD is projected in FY 2004; MS III decision for Production is projected for FY 2008. The PDRR program is structured to demonstrate technical risk reduction achievements at key junctures throughout the PDRR phase. The Air Force established reviews of the program at two key points: Authority-to-Proceed I and II (ATP-1 and ATP-2, respectively) during PDRR to ensure planned progress is attained. ABL successfully completed ATP-1 on 26 Jun 98. The acquisition strategy is being reviewed by BMDO with OSD and the Air Force											
(U) F. Schedule Profile												
					<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
					1	2	3	4	1	2	3	4
(U)	Milestone I (FY 1997)											
(U)	Authority to Proceed (ATP-1)(FY 1998)											
(U)	North Oscura Peak Integration and Tests											
(U)	Star Scintillometer Tests (Theater)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603319F Airborne Laser Technology			PROJECT 4269		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Major Contracts (PDRR contract and Concept Design)					287,768		202,828		0
(U)	Support Contracts (Technical Support, Analysis)					4,670		5,577		0
(U)	Test/Other Government/Misc Support/Salaries/IPTs					18,927		23,089		0
(U)	Total					311,365		231,494		0
Congress added \$85.0 million to the FY01 appropriation. Beginning in FY02 all ABL FY02 and outyear funding were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.										
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Boeing Defense & Space Group Seattle, WA	CPAF	12 Nov 96	TBD	TBD	418,168	287,768	203,081	0		909,017
Concept Design Contract (Rockwell International, CA)	CPFF	9 May 94	22,071	22,071	22,071	0	0	0		22,071
Concept Design Contract (Boeing Defense & Space Group, WA)	CPFF	9 May 94	21,689	21,689	21,689	0	0	0		21,689
Note - The Performing Activity EAC is TBD pending contractor input.										
<u>Support and Management Organizations</u>										
Technical Support Contracts	Various	Varies	N/A	N/A	20,935	4,670	5,324	0		30,929
Government In-House and Other External Support	Various	Varies	N/A	N/A	41,190	17,347	18,464	0		77,001

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603319F Airborne Laser Technology				PROJECT 4269		
(U) <u>Performing Organizations Continued:</u>										
<u>Test and Evaluation Organizations</u>										
Air Force Flight Test Center	MIPR	Varies	N/A	N/A	2,579	1,580	4,625	0	8,784	
(AFFTC)										
Beginning in FY02 all ABL FY02 and outyear funding were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.										
(U) <u>Government Furnished Property:</u>										
	<u>Contract</u>	<u>Award or</u>								
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Description</u>	<u>Vehicle</u>									
<u>Product Development Property</u>										
The government is providing miscellaneous support equipment during the test phase of the PDRR program. In addition, the government is also providing hardware items to facilitate Infrared Search and Track (IRST) tests. The costs of these two categories of GFP fall below the \$1M reporting threshold.										
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					461,928	287,768	203,081	0		952,777
Subtotal Support and Management					62,125	22,017	23,788	0		107,930
Subtotal Test and Evaluation					2,579	1,580	4,625	0		8,784
Total Project					526,632	311,365	231,494	0		1,069,491
Beginning in FY02 all ABL FY02 and outyear funding were transferred to the Ballistic Missile Defense Organization (BMDO) per OSD direction.										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM					PROJECT 4993		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4993	GPS BLOCK III	0	0	78,358	100,575	185,119	188,838	227,900	224,516	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) **A. Mission Description**
 The NAVSTAR Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for the GPS Block III. This includes, but is not limited to advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems with the potential of hosting the GPS PNT system on multi-mission service satellite platforms [such as the Global Multi-Mission Service Platform (GMSP)], control systems development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and developmental test resources.

Funds will support future engineering studies and analyses, architectural engineering studies, trade studies, development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and civil applications of user equipment necessary to support efforts to protect U.S. military and allies' use of GPS.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$0 No Activity--Work performed in PE 0305165F
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$0 No Activity--Work performed in PE 0305165F
 (U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																							
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	PROJECT 4993																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$4,700 GPS Modernization Stewardship</p> <p>(U) \$10,758 JPO Support for GPS III/Modernization</p> <p>(U) \$62,900 GPS III Development</p> <p>(U) \$78,358 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p> This program is Budget Activity 4 - Concept & Technology Development because it is a pre-milestone effort</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">78,358</td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">78,358</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> RDT&E funds for GPS III transferred from PE 0305165F starting in FY02.</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	0	0	0	0	(U) Appropriated Value	0	0		0	(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	0	0		0	b. Small Business Innovative Research	0	0		0	c. Omnibus or Other Above Threshold Reprogram	0	0		0	d. Below Threshold Reprogram	0	0		0	e. Rescissions	0	0		0	(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	78,358	0	(U) Current Budget Submit/FY 2002 PBR	0	0	78,358	TBD
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																					
(U) Previous President's Budget (FY 2001 PBR)	0	0	0	0																																																					
(U) Appropriated Value	0	0		0																																																					
(U) Adjustments to Appropriated Value																																																									
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b. Small Business Innovative Research	0	0		0																																																					
c. Omnibus or Other Above Threshold Reprogram	0	0		0																																																					
d. Below Threshold Reprogram	0	0		0																																																					
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(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	78,358	0																																																					
(U) Current Budget Submit/FY 2002 PBR	0	0	78,358	TBD																																																					
Project 4993	Page 2 of 4 Pages	Exhibit R-2 (PE 0603421F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM				PROJECT 4993	
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	0	0	0	0	0	0	0	0	0	0
(U) Related RDT&E:										
(U) PE 0305165F NAVSTAR GPS (Space & Ground)	106,849	258,592	186,459	206,960	72,760	60,135	59,667	51,003	Continuing	TBD
(U) Other APPN None										
(U) E. Acquisition Strategy										
In Nov 00, GPS III Source Selection awarded one-year contracts to Boeing and Lockheed Martin at \$16M each. Both companies shall complete a trade study in conjunction with development of System Architecture Requirements Definition (SARD). Contract Award for Component Advanced Development expected in FY02 with System Development and Demonstration phase scheduled to begin in FY04. Efforts accomplished prior to FY02 are included in PE 0305165F. The GPS JPO anticipates issuing an RFP to conduct a 'Full and Open Competition' with award planned to two qualified bidders. The Production and Deployment phase is expected to begin in FY07. If approved, GPS III functionality to host multi-mission platforms will be studied with new concept exploration efforts as well.										
(U) F. Schedule Profile										
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>
				1	2	3	4	1	2	3
(U) System Architecture & Requirements Development								*		
(U) GPS III Defense Acquisition Executive (DAE) Review									X	
(U) Component Advanced Development Contract Awards										X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))					PROJECT 4050	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4050	Advanced MILSATCOM	89,824	244,135	548,398	516,866	345,019	274,653	161,493	72,095	68,001	2,495,588
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	2
<p>This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> Develop and acquire Advanced Extremely High Frequency (EHF) Military Satellite Communications (MILSATCOM) satellites and cryptography with necessary modifications to the mission control segment for survivable, jam-resistant, worldwide, secure communications for the strategic and tactical warfighter. Advanced EHF (AEHF) satellites will replenish the existing EHF system (Milstar) providing additional capability at decreased launch costs. This program is utilizing commercial technology to the maximum extent possible. The Joint Requirements Oversight Council (JROC) considered the AEHF 'Pathfinder' concept as mitigation to the Milstar Flight 3 loss. This concept implements the acceleration (Dec 2004 launch) of the first satellite, at ORD threshold capability, following software uploads after satellite 2 launch. Pathfinder, the first satellite, will be followed by the delivery of four additional fully capable AEHF satellites. The acquisition is via a sole source National Team approved by USD(AT&L). Satellites 1 and 2 were funded with RDT&E funds while satellites 3 through 5 will be funded with procurement funds.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$1,700 Completed Advanced EHF technology validation (U) \$29,391 Completed Processing Subsystem Engineering Model Program (U) \$37,490 Began System Definition (U) \$17,163 Began Satellite Cryptographic Development (U) \$864 Continued AEHF Program Office Support Activities (U) \$3,216 Continued Joint Terminal Engineering Office (JTEO) Support (U) \$89,824 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$184,125 Complete System Definition to accelerate satellite 1 launch (U) \$17,574 Begin Engineering & Manufacturing Development (EMD) of the AEHF satellites and Mission control Segment (U) \$17,602 Continue Satellite Cryptographic Development (U) \$21,416 Continue Program Office Support -Transition of Advanced EHF MILSATCOM Joint Program Office Support from Milstar PE 64479F (U) \$3,418 Continue JTEO Support</p>											
Project 4050				Page 1 of 6 Pages				Exhibit R-2 (PE 0603430F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
04 - Demonstration and Validation	0603430F Advanced (EHF MILSATCOM (Space))	4050			
(U) A. Mission Description Continued					
(U) FY 2001 (\$ in Thousands) Continued					
(U)	\$244,135	Total			
The following net transactions are not reflected in the FY01 Program Total: BTR = -\$4,442K and SBIR = -\$8,131K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.					
(U) FY 2002 (\$ in Thousands)					
(U)	\$503,883	Continue EMD (design and parts) of the AEHF satellites and Mission Control Segment (MCS) and begin build of satellite 1, satellite 2, and the MCS			
(U)	\$18,650	Complete Satellite Cryptographic Development			
(U)	\$22,419	Continue AEHF Program Office Support Activities			
(U)	\$3,446	Continue JTEO Support			
(U)	\$548,398	Total			
(U) B. Budget Activity Justification					
This program is in Budget Activity 4, Research Category Demonstration and Validation, since it funds Advanced EHF technology validation and modeling.					
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	95,529	246,396	519,832	2,383,788
(U)	Appropriated Value	97,066	246,396		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-763	-1,725		
	b. Small Business Innovative Research	-3,527			
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram	-2,572			
	e. Rescissions	-380	-536		
(U)	Adjustments to Budget Years Since FY 2001 PBR			28,566	
(U)	Current Budget Submit/FY 2002 PBR	89,824	244,135	548,398	2,495,588
(U) Significant Program Changes:					
FY02 funding increased to facilitate acceleration of Pathfinder.					
Project 4050		Page 2 of 6 Pages		Exhibit R-2 (PE 0603430F)	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603430F Advanced (EHF MILSATCOM (Space))					PROJECT 4050	
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related Missile Proc:										
(U) PE 0303604, Advanced EHF Procurement	0	0	0	334,936	277,673	267,974	9,820	6,773	613,999	1,511,175
(U) PE 0303600F, AF Wideband 3080 (CCS-C)	0	0	5,429	5,635	8,402	2,222			0	21,688
(U) Related RDT&E:										
(U) PE 0603854F, BPAC 644870, AF Wideband 3600 (CCS-C), BA-4, R-49	0	11,394	13,319	24,386	46,519	25,838			0	121,456
(U) PE 0604479F, Milstar LDR/MDR Satellite Communications (space), BA-5, R-69	345,590	235,164	232,084	110,363	1,424	1,421			0	9,682,272
(U) PE 0303601F, MILSATCOM Terminals, BA-7, R-164										
(U) E. Acquisition Strategy										
The Advanced MILSATCOM is for the Advanced EHF (AEHF) program and is a sole source acquisition consisting of a National Team comprised of Lockheed Martin (prime integrator), TRW and Boeing. This team will perform the Engineering and Manufacturing Development leading to the production of five satellites and associated mission control ground capabilities under a firm fixed price contract. AEHF will incorporate improvements from Milstar and commercial SATCOM practices into the next generation EHF military communication satellite system.										
(U) F. Schedule Profile										
				<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603430F Advanced (EHF MILSATCOM (Space))			4050		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	MILSATCOM Technology Validation Program					1,700		0		
(U)	Processing Subsystem Engineering Model					29,391		0		
(U)	Program Office Support					864		21,416		22,419
(U)	System Definition					37,490		184,125		
(U)	Cryptographic Development					17,163		17,602		18,650
(U)	Satellite EMD					0		17,574		503,883
(U)	Joint Terminal Engineering Office (JTEO)					3,216		3,418		3,446
(U)	Total					89,824		244,135		548,398
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
NSA	MIPR	Dec 99	39,571	39,571	0	17,163	17,602	18,650	0	53,415
JTEO	PR	Continuing	94,015	94,015	2,000	3,216	3,418	3,446	82,043	94,123
MIT/LL	MIPR	Feb 95	4,988	4,988	3,288	1,700	0	0	0	4,988
Hughes	CPFF	May 97	67,175	67,175	52,163	15,012	0	0	0	67,175
TRW	CPFF	May 97	62,083	62,083	47,704	14,379	0	0	0	62,083
Various	Various	95-01	N/A	N/A	66,659	0	0	0	0	66,659
Lockheed Martin	FFP	Oct 00	111,750	111,750	0	27,240	184,125	0	0	211,365
Hughes	FFP	Oct 00	10,250	10,250	0	10,250	0	0	0	10,250
EMD Contractor (National Team)	TBD	Aug 01	TBD	TBD	0	0	17,574	503,883	1,258,586	1,780,043
<u>Support and Management Organizations</u>										
Various	Various	Continuing	N/A	N/A	3,290	864	21,416	22,419	97,498	145,487

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)					PROJECT 4052		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4052	Polar Satellite Communications	37,555	25,829	18,724	9,588	5,724	981	0	0	0	277,039
	Quantity of RDT&E Articles	0	0	0	1	1	0	0	0	0	0

NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) **A. Mission Description**
 The Polar MILSATCOM program will provide protected communications services to U.S. forces operating in the northern polar region. In Oct 94, the DoD identified an immediate need for protected polar communications, and in Jul 95 the Joint Requirements Oversight Council (JROC) validated the Polar MILSATCOM ORD containing both full-up requirements and a subset to meet the urgent, immediate need. In July 95, the Defense Acquisition Executive approved what has been called the Interim Polar Program -- expeditious placement of a modified Milstar technology Extremely High Frequency (EHF) payload previously designed for the Navy's UHF Follow On (UFO) system onto a classified host satellite to provide limited requirements satisfaction while pursuing a long term solution. The first of three interim (hosted) packages was launched in Nov 97, the last two will be available in FY03 and FY06. Efforts are under way to update the 1995 ORD and define and plan for the long term solution that is frequently called Advanced Polar -- satisfaction of the updated full-up requirements set based on technology from the Advanced EHF Program (the successor to Milstar).

(U) **FY 2000 (\$ in Thousands)**
 (U) \$37,555 Continued parts buy and payload/integration development with host vehicle for Interim Polar packages 2 and 3. (Through classified host contract)
 (U) \$37,555 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$25,829 Continue payload development and integration development with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract)
 (U) \$25,829 Total

The following net transaction is not reflected in the FY01 program total: BTR = +3,400 K to fund cost growth on classified host contract. This transaction is not reflected in other sections of the R-docs where an FY01 total is shown.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																																																								
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)			PROJECT 4052																																																																																								
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$18,724 Assemble payload and integrate with host vehicle for Interim Polar packages 2 and 3. (Through the classified host contract)</p> <p>(U) \$18,724 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>The Polar MILSATCOM Program is in Budget Activity 4 (Demonstration and Validation) based on 30 Mar 95 USD(A&T) memorandum to pursue the interim hosted solution (Interim Polar).</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">39,049</td> <td style="text-align: right;">26,068</td> <td style="text-align: right;">12,923</td> <td style="text-align: right;">277,039</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">39,678</td> <td style="text-align: right;">26,068</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-310</td> <td style="text-align: right;">-182</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-1,442</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-216</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-155</td> <td style="text-align: right;">-57</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">5,801</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">37,555</td> <td style="text-align: right;">25,829</td> <td style="text-align: right;">18,724</td> <td style="text-align: right;">277,039</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>(U) FY02 adjustment funds cost growth on classified host contract.</p> <p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None.</td> <td></td> </tr> </tbody> </table> <p>(U) <u>E. Acquisition Strategy</u></p> <p>The Air Force provides funds to the classified host program office to modify the host satellite system contract to include the Polar EHF package. The host program office has total acquisition responsibility for interim Polar.</p>									<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	39,049	26,068	12,923	277,039	(U) Appropriated Value	39,678	26,068			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-310	-182			b. Small Business Innovative Research	-1,442				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-216				e. Rescissions	-155	-57			(U) Adjustments to Budget Years Since FY 2001 PBR			5,801		(U) Current Budget Submit/FY 2002 PBR	37,555	25,829	18,724	277,039		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) None.																
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Project 4052		Page 2 of 5 Pages			Exhibit R-2 (PE 0603432F)																																																																																										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)					PROJECT 4052		
(U) F. Schedule Profile												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Hosted Interim Payload #1 Launched (1QFY98)											
(U)	Preliminary Design Review											
(U)	Critical Design Review											
(U)	(Payloads 2 and 3 available in FYs 03 & 04)											
	* Completed Event											
	X Plannened Event											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603432F Polar MILSATCOM (Space)			PROJECT 4052			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Packages 2 & 3 Payload/Integration Development					37,555		25,829		18,724	
(U)	Total					37,555		25,829		18,724	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Classified	Classified	June 95	Continuing	Continuing	183,518	37,555	25,829	18,724	11,413	277,039
	<u>Support and Management Organizations</u>										
	N/A										
	<u>Test and Evaluation Organizations</u>										
	N/A										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Product Development Property</u>										
	N/A										
	<u>Support and Management Property</u>										
	N/A										
	<u>Test and Evaluation Property</u>										
	N/A										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT
04 - Demonstration and Validation			0603432F Polar MILSATCOM (Space)			4052
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
			<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
						<u>Budget to</u>
						<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development			183,518	37,555	25,829	18,724
Subtotal Support and Management						11,413
Subtotal Test and Evaluation						
Total Project			183,518	37,555	25,829	18,724
						11,413
						277,039

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)					PROJECT 4056		
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4056	National Polar-orbiting Operational Env. Sat. Syst.		56,380	75,950	157,394	238,038	308,784	261,918	242,803	163,995	217,134	1,930,461
	Quantity of RDT&E Articles		0	0	2	0	0	0	0	0	2	2
NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.												
Quantity of RDT&E articles in based on first year of funding.												
(U) A. Mission Description												
<p>Presidential Decision Directive/NSTC-2 (May 1994) directs the Departments of Defense (DoD) and Commerce (DOC) and the National Aeronautics and Space Administration to establish a converged national polar-orbiting weather satellite program. The converged program, the National Polar-orbiting Operational Environmental Satellite System (NPOESS), will combine the follow-on to DoD's Defense Meteorological Satellite Program (DMSP) and the DOC's Polar-orbiting Operational Environmental Satellite (POES) program. A tri-agency Integrated Program Office (IPO) was established on 1 Oct 94 to manage the acquisition and operations of the converged system. NPOESS will provide operational military commanders and civilian leaders timely, quality weather and environmental information to effectively employ weapon systems and protect national resources. The converged program will be the nation's primary source of global weather and environmental data for operational military and civil use. It will provide visible and infrared cloud cover imagery and other atmospheric, oceanographic, terrestrial, and space environmental information. NPOESS will require a combination of satellites in sun synchronous 450 nm polar-orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). NPOESS successfully completed Milestone I on 17 March 1997. This budget submission includes funding for the June 2000 NPOESS Executive Committee (EXCOM) agreement in principle to add one NPOESS satellite to the program and decrease dependance on the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Operational (METOP) 3 & 4 satellites. This agreement was predicated on the inability of the METOP-3 spacecraft to host NPOESS sensors as needed to fulfill NPOESS requirements. Funding for the METOP-3 & 4 sensor packages has been used to offset the cost of the required additional NPOESS satellites.</p>												
(U) FY 2000 (\$ in Thousands)												
(U) \$648 Continued program office support for PDRR efforts.												
(U) \$200 Completed government-led risk reduction and technology development efforts.												
(U) \$2,988 Continued system architecture studies and ground system risk reduction to include the start of competitive contracts between TRW and Lockheed Martin to definitize the NPOESS space and ground segment architectures.												
Project 4056				Page 1 of 8 Pages				Exhibit R-2 (PE 0603434F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	4056
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
(U) \$52,544	Continued critical Visible/Infrared Imager Radiometer Suite (VIIRS), Conical-scanning Microwave Imager/Sounder (CMIS), Cross-track Infrared Sounder (CrIS), Ozone Mapping and Profile Suite (OMPS), and GPS Occultation Sensor (GPSOS) sensors and associated algorithm development efforts and sensor design and fabrication for risk reduction missions.	
(U) \$56,380	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$643	Continue program office support for PDRR efforts.	
(U) \$24,800	Complete system architecture studies and continue system definition contracts and ground system risk reduction to include competitive contracts between TRW and Lockheed Martin to definitize the NPOESS space and ground segment architectures.	
(U) \$50,507	Continue critical VIIRS, CMIS, CrIS, OMPS, and GPSOS sensor and associated algorithm development efforts and sensor design and fabrication for risk reduction missions.	
(U) \$75,950	Total	
The following net transactions are not reflected in the FY01 program total: BTR=+339K, and SBIR=-5.258M. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$457	Continue program office support for PDRR and EMD efforts.	
(U) \$30,170	Complete system definition contracts and ground system risk reduction to include competitive contracts between TRW and Lockheed Martin to definitize the NPOESS space and ground segment architectures.	
(U) \$81,446	Transition critical VIIRS, CMIS, CrIS, OMPS, and GPSOS sensor and associated algorithm development efforts and sensor design and fabrication for risk reduction missions to EMD/Production contract.	
(U) \$45,321	Initiate System Engineering and Manufacturing Development effort including sensor and associated algorithm development, design and fabrication.	
(U) \$157,394	Total	
(U) <u>B. Budget Activity Justification</u>		
This PE is in Budget Activity 4 (Demonstration and Validation) because it currently supports sensor and satellite bus development prior to a milestone II/Production decision.		
Project 4056	Page 2 of 8 Pages	Exhibit R-2 (PE 0603434F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE
				June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
04 - Demonstration and Validation	0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	4056		
(U) C. Program Change Summary (\$ in Thousands)				
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
				<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)		59,180	76,654	156,503
(U) Appropriated Value		60,137	76,654	
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-477	-537	
b. Small Business Innovative Research		-2,185		
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram		-860		
e. Rescissions		-235	-167	
(U) Adjustments to Budget Years Since FY 2001 PBR				891
(U) Current Budget Submit/FY 2002 PBR		56,380	75,950	157,394
(U) <u>Significant Program Changes:</u>				
Schedule: Spacecraft fabrication and integration were accelerated to phase satellite deliveries in order to compensate for lost EUMETSAT METOP-3 capability. Delays in the requirements process drove the extension of the PDRR program and a delay to the scheduled award of the Total System Performance Responsibility (TSPR) contract from 2QFY02 to 4QFY02.				
<p>For planning and budget purposes, the NPOESS Integrated Program Office had assumed that a Joint Polar System agreement between the USG and EUMETSAT would include provisions for flying required NPOESS payloads on the METOP-3 spacecraft in the mid-morning orbit. These plans for NPOESS were predicated on the assumption that an agreement could be reached with EUMETSAT that would allow NPOESS instruments to be accommodated on the METOP-3 spacecraft (i.e., that EUMETSAT would make a 'block change' with its third spacecraft to ensure compatibility of instruments in the NPOESS era)</p> <p>However, the 17-member nation EUMETSAT Council decided to develop and procure three identical METOP spacecraft as a 'block purchase' under a single contract cosigned by the European Space Agency (ESA) and EUMETSAT. EUMETSAT has concluded that the extension of the Initial Joint Polar System (IJPS) agreement would include additional NOAA instruments for METOP-3, identical to those provided for METOP-1 and METOP-2, and not NPOESS instruments.</p> <p>As a result of these decisions, NPOESS instruments will not be flown on METOP-3, and as the notional spacecraft constellation was configured, the IPO would not have been able to fully achieve the IORD-I requirements (primarily the 4-hour refresh rate for high resolution imagery).</p>				
Project 4056	Page 3 of 8 Pages	Exhibit R-2 (PE 0603434F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE			
							June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation				0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)			4056			
(U) C. Program Change Summary (\$ in Thousands) Continued										
(U) <u>Significant Program Changes Continued:</u>										
In June of 2000, the NPOESS Executive Committee (EXCOM) reviewed and endorsed the IPO recommended solution to reduce dependence on METOP-3 and 4 by adding an additional NPOESS spacecraft carrying only the critical VIIRS and CMIS sensors in the mid-morning orbit. Part of the cost of the additional spacecraft was offset by savings from selected sensors packages originally planned for delivery to EUMETSAT for METOP-3 and 4.										
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Related NOAA PAC	59,772	73,164	156,564	237,250	302,900	285,900	312,050	0	1,719,100	3,286,200
Funding: Polar Convergence*										
(U) Related NPOESS MPAF:						33,984	0	167,230	225,279	426,493
PE035178F										
(U) Related EELV MPAF:							75,000	0	375,000	450,000
PE035953F**										
(U) Other operations and									498,811	498,811
sustainment funding***										
* National Oceanic and Atmospheric Administration Procurement, Acquisition, and Construction (NOAA PAC) appropriation. The Air Force (DoD) and NOAA (DoC) fund NPOESS 50/50. Total cost includes prior-year amount of \$139.5M. Total NPOESS program cost is the sum of NPOESS RDT&E AF 0603434F, MPAF 0305178F, NPOESS portion of EELV MPAF 0305953F, and Polar Convergence NOAA PAC.										
** NPOESS Launch vehicle funding is budgeted entirely in EELV PE 0305953F, and represents a portion of the DoD's 50% funding contribution in specific given years.										
*** Operations and sustainment (O&S) may begin after Initial Operational Capability (IOC) in FY11 as either Operations & Maintenance AF, NOAA Operations Research and Facilities (ORF) or other appropriations depending on the concept selected for post IOC O&S.										
(U) E. Acquisition Strategy										
The guiding tenets for NPOESS acquisition include accomplishing substantial risk reduction with a focus on payload development, enhancing data utility to users, deferring major system decisions as long as reasonable, and protecting maximum flexibility to ensure the best overall system design. The program pursues a significant investment in the development and on-orbit testing of selected payload sensors while deferring individual sensor selections among competing international, NASA, military, and industry alternatives to assess and determine the optimum technical performance potential of each candidate sensor. NPOESS is currently pursuing two missions to reduce sensor development and data user segment risk. The Wind Sat/Coriolis mission will prove technologies to be used for the NPOESS Conical-Scanning										
Project 4056			Page 4 of 8 Pages				Exhibit R-2 (PE 0603434F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)	PROJECT 4056
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(U) E. Acquisition Strategy Continued

Microwave Imager/Sounder (CMIS) sensor. The NPOESS Preparatory Project will fly and test-out three of NPOESS's most complex sensors: the Visible/Infrared Imager Radiometer Suite (VIIRS), the Cross Track Infrared Sounder (CrIS), and the Advanced Technology Microwave Sounder (ATMS). Overall system prime contractor selection was deferred until 2002 to minimize system level preliminary costs, allow sensor complement maturation, and delay the commitment to full system acquisition until approximately six years before the first satellite need date. The first two satellites will be incrementally funded with RDT&E funding. The rest will be fully funded with Missile Procurement funding.

The NPOESS EXCOM has restructured the program three times since the Milestone I decision. The last EXCOM decision reduces reliance of EUMETSAT by replacing their capability shortfall with an additional NPOESS satellite. In addition, the first NPOESS satellite will be launched in the early-morning orbit and the last DMSP satellite will be launched in the mid-morning orbit. This will ensure adequate meteorological coverage in EUMETSAT's polar orbit until a replacement NPOESS spacecraft is ready. It also minimizes the cost impact of compensating for the lost capability caused by the EUMETSAT decision.

(U) F. Schedule Profile

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Program Rebaselined						*						
(U) Competitive Sensor Development Contracts Downselected				*					X			
(U) Award Competitive Program Definition & Risk Reduction contracts	*											
(U) Milestone II/Production decision and Award of EMD/Production contract												X
(U) * = Completed Event X = Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation					0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)			4056			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Program Office Support for PDRR efforts					648		643		457	
(U)	System Architecture Studies/Definition/Ground System Risk Reduction					2,988		24,800		30,170	
(U)	Government Led Risk Reduction/ Technology efforts					200		0		0	
(U)	Sensor/Algorithm Development and Design/Fabrication for Risk Reduction Missions/Program Support					52,544		50,507		81,446	
(U)	Engineering and Manufacturing Development effort					0		0		45,321	
(U)	Total					56,380		75,950		157,394	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Syst. Arch. Studies	C/CPFF	Sep 96	12,820	12,820	12,820					12,820
	TRW (PDRR)	C/FFP	Dec 99	28,535	28,535		1,050	12,400	15,085		28,535
	Lockheed Martin (PDRR)	C/FFP	Dec 99	28,035	28,035		550	12,400	15,085		28,035
	Lockheed Martin	C/CPAF	Dec 94	4,489	4,489	4,489					4,489
	Raytheon (VIIRS & CrIS)	C/CPFF	Jul 97	28,716	28,716	18,860	9,856				28,716
	Ball Aerospace (CMIS & OMPS)	C/CPFF	Jul 97	29,746	29,746	13,566	10,427	5,753			29,746
	Ball Aerospace (OMPS)	C/CPAF	May 99	39,147	39,147	440	5,695	13,482	10,744	8,786	39,147
	ITT Aerospace (VIIRS & CrIS)	C/CPFF	Jul 97	30,475	30,475	19,035	11,440				30,475
	Boeing (formerly Hughes) Space and Communications	C/CPFF	Jul 97	27,195	27,195	12,055	11,324	3,816			27,195
Project 4056											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE					PROJECT	
04 - Demonstration and Validation				0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)					4056	
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
(CMIS)										
Orbital Sciences (OMPS)	C/CPFF	Jul 97	2,578	2,578	2,578					2,578
SAAB Ericsson (GPSOS)	C/CPFF	Jul 97	2,786	2,786	2,786					2,786
SAAB Ericsson (GPSOS)	SS/FFP	Aug 99	6,108	6,108		850	2,450	2,808		6,108
ITT Areospace (CrIS)	C/CPAF	Aug 99	32,269	32,269		3,700	7,000	9,096	12,473	32,269
Raytheon (VIIRS)	C/CPAF	Nov 00	89,125	89,125			13,053	24,725	51,347	89,125
Other Contracts (CMIS, TSPR, ground system, leveraged sensors)	MISC	Various	N/A	N/A	21,156	640	4,953	79,394	1,412,584	1,518,727
Government Led Studies	Gov. Orgs.	Various	26,302	26,302	26,102	200	0		0	26,302
<u>Support and Management Organizations</u>										
Integrated Program Office (IPO) Support	Various	Various	23,408	23,408	13,464	648	643	457	8,196	23,408
<u>Test and Evaluation Organizations</u>										
TBD										
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
NOT APPLICABLE										
<u>Support and Management Property</u>										
NOT APPLICABLE										
<u>Test and Evaluation Property</u>										
NOT APPLICABLE										
Project 4056										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603434F National Polar-Orbiting Operational Environmental Satellite System (NPOESS)			4056	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development	133,887	55,732	75,307	156,937	1,485,190
	Subtotal Support and Management	13,464	648	643	457	8,196
	Subtotal Test and Evaluation					
	Total Project	147,351	56,380	75,950	157,394	1,493,386
						1,907,053
						23,408
						1,930,461

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001										
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603438F Space Control Technology					PROJECT 2611										
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost								
2611	Technology Insertion Planning and Analysis	12,258	7,897	33,022	9,764	9,753	9,742	9,946	10,156	Continuing	TBD								
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0								
<p>FY02: The following new tasks are being initiated with this President's Budget:</p> <ul style="list-style-type: none"> - Counter satellite communications system - Counter surveillance reconnaissance system - Space Range development <p>FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> This program supports a range of activities including technology planning, development, demonstrations and prototyping, as well as modeling, simulations and exercises to support development of tactics and procedures in the Space Control mission area. The types of Space Control activities accomplished are surveillance, protection, prevention, and negation. Surveillance is the monitoring, detecting, identifying, tracking, assessing, verifying, categorizing, and characterizing, objects and events in space for use in the Space Control mission area. Protection includes defensive activities to protect U.S. and friendly space-systems assets, resources, and operations from enemy attempts to negate or interfere. Prevention limits or eliminates an adversary's ability to use U.S. space systems and services for purposes hostile to U.S. national security interests. Negation activities disrupt, deny, degrade or destroy an adversary's space systems, or the information they provide, which may be used for purposes hostile to U.S. national security interests. Consistent with DoD policy, the negation efforts of this program focus only on negation technologies which have temporary, localized, and reversible effects.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <table border="0"> <tr> <td>(U) \$2,000</td> <td>Determined surveillance system deficiencies to meet Space Control requirements and assessed technologies needed to satisfy mission needs.</td> </tr> <tr> <td>(U) \$3,091</td> <td>Determined space system protection deficiencies. Assessed requirements for protection of U.S. space systems and potential technologies to achieve required threat warning and attack reporting.</td> </tr> <tr> <td>(U) \$7,167</td> <td>Continued to develop technologies to counter surveillance, reconnaissance, and communications satellite systems.</td> </tr> <tr> <td>(U) \$12,258</td> <td>Total</td> </tr> </table>												(U) \$2,000	Determined surveillance system deficiencies to meet Space Control requirements and assessed technologies needed to satisfy mission needs.	(U) \$3,091	Determined space system protection deficiencies. Assessed requirements for protection of U.S. space systems and potential technologies to achieve required threat warning and attack reporting.	(U) \$7,167	Continued to develop technologies to counter surveillance, reconnaissance, and communications satellite systems.	(U) \$12,258	Total
(U) \$2,000	Determined surveillance system deficiencies to meet Space Control requirements and assessed technologies needed to satisfy mission needs.																		
(U) \$3,091	Determined space system protection deficiencies. Assessed requirements for protection of U.S. space systems and potential technologies to achieve required threat warning and attack reporting.																		
(U) \$7,167	Continued to develop technologies to counter surveillance, reconnaissance, and communications satellite systems.																		
(U) \$12,258	Total																		
Project 2611		Page 1 of 6 Pages					Exhibit R-2 (PE 0603438F)												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603438F Space Control Technology	2611
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$2,251 Develop potential technical solutions to address surveillance systems deficiencies and links to space control requirements.</p> <p>(U) \$733 Develop potential technical solutions to address space system protection shortfalls. Develop potential technical solutions to address threat warning and attack reporting shortfalls and determining reporting architecture and most promising technologies to pursue.</p> <p>(U) \$4,913 Continue development of technologies to counter surveillance, reconnaissance, and communications satellite systems.</p> <p>(U) \$7,897 Total</p> <p>The following net transaction is not reflected in the FY01 program total: SBIR = -613K. This transaction is not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$6,379 Accomplish threat warning and attack reporting AoA. Continue risk reduction activities, such as threat detection and characterization technology demonstrations, 'red team' vulnerability assessments, system architecture development, acquisition planning and preparation to support a Milestone B decision in FY03.</p> <p>(U) \$9,580 Begin the development and fielding of a small, mobile/transportable system to counter satellite communication systems. Develop and demonstrate advanced counter communications technologies and techniques.</p> <p>(U) \$9,075 Begin development and demonstration of a system to counter surveillance and reconnaissance satellite systems. Participate in exercises and demonstrations of a counter surveillance reconnaissance (SR) system. Complete military utility analysis, risk reduction efforts, and perform pre-concept exploration and concept definition, system architecture development, and planning to support FY02 and early FY03 decisions for system development. Continue to develop advanced counter-SR techniques.</p> <p>(U) \$988 Continue development and demonstration of advanced techniques and technologies for space control prevention systems in the laboratory and field begun in FY99 and not funded in FY00/01.</p> <p>(U) \$7,000 Begin development of the system architecture and acquisition of Space Control elements of the Space range. Begin demonstration of test assets, special test equipment, capabilities and systems required to test, validate, and verify performance of integrated Space Control technologies. Develop the test range assets to exercise, train, and develop tactics for Space Control technologies and systems.</p> <p>(U) \$33,022 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 4 - Demonstration and Validation, because it supports the research, demonstration, and validation of Space Control technologies.</p>		
Project 2611	Page 2 of 6 Pages	Exhibit R-2 (PE 0603438F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE			
							June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT			
04 - Demonstration and Validation				0603438F Space Control Technology			2611			
(U) C. Program Change Summary (\$ in Thousands)										
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>					
(U)	Previous President's Budget (FY 2001 PBR)	12,621	9,728	9,772	TBD					
(U)	Appropriated Value	12,822	9,728							
(U)	Adjustments to Appropriated Value									
	a. Congressional/General Reductions	-99	-68							
	b. Small Business Innovative Research	-466	0							
	c. Omnibus or Other Above Threshold Reprogram	0	0							
	d. Below Threshold Reprogram	51	-1,746							
	e. Rescissions	-50	-17							
(U)	Adjustments to Budget Years Since FY 2001 PBR	0		23,250						
(U)	Current Budget Submit/FY 2002 PBR	12,258	7,897	33,022	TBD					
(U) Significant Program Changes:										
	FY01 - BTR to higher priority Air Force programs.									
	FY02 - Increase addresses the recommendations of the Strategy Review. Supports the critical planning, technology development, and system acquisition in support of space control systems to meet current and future military space control needs.									
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable									
(U) E. Acquisition Strategy										
	Use the Air Force's modernization planning process to define space control technology priorities for study and for possible development in FY 2002 and beyond. This PE will influence Air Force Research Laboratory technology, Space and Missile System Center systems, and Electronic Systems Center space surveillance investments.									
(U) F. Schedule Profile										
		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603438F Space Control Technology			PROJECT 2611		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Surveillance technology assessment				2,000		2,251			0
(U)	Protection technology assessment				3,091		733			6,379
(U)	Negation technology development				7,167		4,913			
(U)	Counter Communications system development				0		0			9,580
(U)	Counter Surveillance/Reconnaissance technology and system development									9,075
(U)	Prevention technology development									988
(U)	Space Control Test Range									7,000
(U)	Total				12,258		7,897			33,022
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
SMC	Various				4,862	4,200	7,001	26,221	Continuing	TBD
AFRL	Various				2,220	7,928	800	6,568	Continuing	TBD
<u>Support and Management Organizations</u>										
SMC	Various				130	130	96	233	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>										
None										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation			0603438F Space Control Technology		2611	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
			<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
					<u>Budget to</u>	<u>Total</u>
					<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development			7,082	12,128	7,801	32,789
Subtotal Support and Management			130	130	96	233
Subtotal Test and Evaluation						
Total Project			7,212	12,258	7,897	33,022
					TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY
04 - Demonstration and Validation

PE NUMBER AND TITLE
0603617F Command Control and Communication Applications

COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,175	7,756	0	0	0	0	0	0	0	75,272
2314 Tactical Air Surveillance	444	444	0	0	0	0	0	0	0	8,989
2317 Tactical Air Information Production & Distribution	1,524	3,068	0	0	0	0	0	0	0	18,501
2321 Tactical Battle Information Management	2,989	4,023	0	0	0	0	0	0	0	45,054
3804 Tactical Air Forces Systems Integration	218	221	0	0	0	0	0	0	0	2,728
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

This program is designed to rapidly transition development efforts in the science and technology base directly to warfighting commands. Projects are directly responsive to operational requirements for improved battle management, communications, theater missile defense (TMD), and surveillance capability. This program takes advantage of advanced information technology developments throughout the Services and industry as well as off-the-shelf technology. The program develops, integrates and supports fielding of joint mission critical software applications to the Theater Battle Management Core Systems (TBMCS) and the Air Force Global Command and Control System (GCCS). The program develops, integrates and validates information distribution and assurance technologies in the areas of enterprise network management and control, defensive information warfare, and communications connectivity required for modernization and improvement of the Air Force Global Grid.

(U) B. Budget Activity Justification

This program is in Budget Activity 4, Demonstration and Validation, because its products are primarily advanced development models, rapid prototype efforts, and software developed through evolutionary spiral development acquisition methods.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE
BUDGET ACTIVITY				June 2001
04 - Demonstration and Validation		PE NUMBER AND TITLE		
		0603617F Command Control and Communication Applications		
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>			
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U)	Previous President's Budget (FY 2001 PBR)	7,833	7,828	7,936
(U)	Appropriated Value	7,833	7,828	
(U)	Adjustments to Appropriated Value			
	a. Congressional/General Reductions			
	b. Small Business Innovative Research	-235		
	c. Omnibus or Other Above Threshold Reprogram	-1,539		
	d. Below Threshold Reprogram	-853		
	e. Rescissions	-31	-72	
(U)	Adjustments to Budget Years Since FY 2001 PBR			-7,936
(U)	Current Budget Submit/FY 2002 PBR	5,175	7,756	0
				75,272
(U)	<u>Significant Program Changes:</u>			
	Program terminated in FY02.			
	 FY2000 database update will reflect an additional -34K BTR.			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications	PROJECT 2314
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2314 Tactical Air Surveillance	444	444	0	0	0	0	0	0	0	8,989

(U) **A. Mission Description**
 Develops and demonstrates advanced aerospace surveillance technology in support of next generation sensors and sensor signal processing. Investigates non-radar and/or adjunct radar sensors to address the Combat Air Forces (CAF) surveillance, detection, tracking and identification requirements not satisfied by an active radar.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$203 Complete Track Before Detect for TMD
 (U) \$164 Complete GTACS Bistatic/ESM System Definition
 (U) \$77 Initiate GTACS Bistatic/ESM ground demonstration
 (U) \$444 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$174 Complete GTACS Bistatic/ESM ground demonstration
 (U) \$270 Initiate/Complete GTACS Bistatic/ESM Air Target ID Breadboard
 (U) \$444 Total

(U) **FY 2002 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total

(U) **B. Project Change Summary**
 Not applicable

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 2314		
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) RDT&E, AF (0603789F, Project 4072)	10,851	9,788								
(U) RDT&E, AF (0207412F, Project 485L)	467	450								
(U) D. Acquisition Strategy										
All contracts in this project are awarded in full competition and are Cost Plus Fixed Fee (CPFF) or Cost Plus Award Fee (CPAF) as appropriate for advanced development.										
(U) E. Schedule Profile										
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
				1	2	3	4	1	2	3
(U) Complete Track Before Detect for TMD							*			
(U) Complete GTACS Bistatic/ESM System Definition							*			
(U) Initiate GTACS Bistatic/ESM Ground Demo							*			
(U) Complete GTACS Bistatic/ESM Ground Demo									X	
(U) Initiate GTACS Bistatic Air Target ID Breadboard							*			
(U) Complete GTACS Bistatic Air Target ID Breadboard									X	
Note: * represents a completed event; X represents a planned event.										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications				PROJECT 2314	
(U) A. Project Cost Breakdown (\$ in Thousands)										
					FY 2000		FY 2001			FY 2002
(U)	Primary Hardware Development				394		414			0
(U)	Government Engineering Support				50		30			0
(U)	Total				444		444			0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Hughes	C/CPFF	June 95	1,179	1,179	1,179	0	0	0	0	1,179
DSA	Tsk Ordr	Apr 97	502	502	502	0	0	0	0	502
	Agmt									
Northrop-Grumman	Tsk Ordr	Aug 98	488	488	0	204	0	0	0	204
	Agmt									
Sensis	TBD	TBD	264	264	0	166	0	0	0	166
TBD	TBD	TBD	0	0	0	19	390	0	0	409
<u>Support and Management Organizations</u>										
AF Research Lab	In-house	n/s	N/A	N/A	6,419	55	54	0	0	6,528
Miscellaneous	Various	Various	N/A	N/A	0	0	0	0	0	0
<u>Test and Evaluation Organizations</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation	0603617F Command Control and Communication Applications				2314	
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	1,681	389	390	0	0	2,460
Subtotal Support and Management	6,419	55	54	0	0	6,528
Subtotal Test and Evaluation						
Total Project	8,100	444	444	0	0	8,988

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications					PROJECT 2317
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COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2317	Tactical Air Information Production & Distribution	1,524	3,068	0	0	0	0	0	0	0	18,501

(U) A. Mission Description

Integrates, demonstrates and transitions advanced information assurance and distribution technologies to acquisition organizations in support of the Integrated Command and Control System (IC2S). The goal is the creation of an assured, Global Information Grid (GIG) to support the warfighter and to support experimentation and demonstration processes (e.g. JEFX) to reduce the risk of transitioning advanced Government or commercial information technologies into military Enterprise systems. In coordinating with the strategic planning activities of AF/SC, AC2ISRC, HQ ESC, AFCA, ACC and AMC this project has been reorganized to more effectively demonstrate/validate the transition of AFRL technology into AF planned product acquisitions. The three program focus areas included in this project are: the AF Communications Enterprise Manager (ACEM), which provides capabilities for enterprise communications network management and control; the AF Enterprise Defense (AFED), which incorporates defensive information assurance capabilities; and the Enterprise Management System (EMS) that integrates the products from ACEM, AFED, and the Master Caution Panel (MCP funded under BPAC 2321) into a prototype enterprise management system, whose capabilities will be incrementally built, and shown at the Network Operations Support Center (NOSC) at Langley AFB, VA.

(U) FY 2000 (\$ in Thousands)

- (U) \$66** Complete development of wideband/multiband antennas and prepare for transition to Phase 2 Airborne Communication Network (ACN) and tanker relay platforms
- (U) \$360** Complete evaluation of antenna placement issues for ACN platform
- (U) \$360** Complete design of wideband PA and prepare for transition to Phase 2 ACN and tanker relay platforms
- (U) \$258** Continue integration of technology to improve performance of commercial Asynchronous Transfer Mode over tactical media via error correction and channel management technologies
- (U) \$244** Conduct field demonstration of suitcase SATCOM and assess suitability for airborne platforms
- (U) \$236** Integrate software programmable radios with On-Board System (OBS) capability into tanker relay demonstration
- (U) \$1,524** Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications	PROJECT 2317
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(U) **A. Mission Description Continued**

(U) FY 2001 (\$ in Thousands)

- (U) \$1,783 Install Air Force EnterpriseDefense (AFED) at AMC NOSC and AFMC NOSC for demonstration of capabilities
- (U) \$1,285 Air Force Enterprise Management (ACEM) will demo Commander's Enterprise Status tool and integrate management of reachback into ACC NOSC
- (U) \$3,068 Total

The following net transactions are not reflected in the FY01 program total: BTR = -148 K , ATR = 0 K, and SBIR -240 K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.

(U) FY 2002 (\$ in Thousands)

- (U) \$0 No Activity
- (U) \$0 Total

(U) **B. Project Change Summary**

Project has been restructured to address the focus areas identified by AC2ISRC, specifically 'Enabling the Global Grid'. Three project programs were created to address this: AF Comprehensive Enterprise Management(ACEM), AF Enterprise Defense (AFED), and Enterprise Management System (EMS).

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E, AF (0602702F, Project 4519)	10,817	13,208								24,025
(U) RDT&E, AF (0603789F, Project 2335)	4,093	2,557								6,650
(U) RDT&E, AF (0603789F, Project 4216)	2,458	2,640								5,098

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications	PROJECT 2317
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(U) D. Acquisition Strategy

The Information Grid Division of the Air Force Research Laboratory's Information Directorate manages the acquisition of technology to be integrated via ESC's Global Grid and Defensive Information Warfare PAD's into acquisition programs such as Theater Deployable Communications (TDC) and the CITS/BITS programs. All contracts are awarded under full competition and include Cost Plus Fixed Fee (CPFF) and Cost Plus Award Fee (CPAF) as appropriate for advanced development efforts. All contracts use Evolutionary Prototyping, with heavy user participation.

(U) E. Schedule Profile

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Airborne Comm Relay (ACR)												
(U) -- Phase I/II Demo			*									
(U) -- Multi-Band Antenna Design				*								
(U) -- Wideband Power Amplifier Design				*								
(U) AF Comp Enterprise Mgmt (ACEM)									X			
(U) --Validate Cmdr's C2 ACEM tools					*							
(U) --Show capability upgrade @ NOSC									X			
(U) --Deliver & install final ACEM version												
(U) AF Enterprise Defense (AFED)												
(U) --Install AFED Spiral-1 ACC NOSC			*									
(U) --Install AFED Spiral-2 ACC NOSC					*							
(U) --Upgrade/Install AFED Spiral-3 AMC						*						
(U) --Upgrade/Install AFED Spiral-4 AFMC									X			
(U) --Provide support to IEADS												
(U) Enterprise Management System												
(U) --Integrate Spiral-1 AFED/ACEM/MCP					*							
(U) --Integrate Spiral-2 AFED/ACEM/MCP									X			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications			PROJECT 2317		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	(U)	Primary Hardware/Software integration				1,049		2,595		
(U)	(U)	Government Engineering Support				187		189		
(U)	(U)	Contractor Engineering Support				288		284		
(U)		Total				1,524		3,068		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
GE Marconi		Sept 98	1,661	1,661	210	266	0		0	476
BBN		Sept 96	1,370	1,370		210	587		0	797
USAF C2BL	PD				0	0	0		0	0
Various	TBD	TBD	TBD	TBD	0	540	1,970			2,510
<u>Support and Management Organizations</u>										
AF Research Lab	In-house	N/A	N/A	N/A	12,153	218	222		0	12,593
MITRE		N/A	N/A	TBD		290	289		0	579
<u>Test and Evaluation Organizations</u>										
Not Applicable										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications			PROJECT 2317		
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
Not Applicable									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				210	1,016	2,557		0	3,783
Subtotal Support and Management				12,153	508	511		0	13,172
Subtotal Test and Evaluation									
Total Project				12,363	1,524	3,068		0	16,955

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications					PROJECT 2321		
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2321	Tactical Battle Information Management		2,989	4,023	0	0	0	0	0	0	0	45,054
<p>(U) <u>A. Mission Description</u> Designs and integrates improvements to system software and Command Control (C2) applications via spiral development, rapid prototyping and maximum user participation in all design activities. Current focus is the functional development of the Joint Defensive Planner (JDP), designated by the Joint Staff (J6V) Joint Standards Air Operations Software Configuration Control Board as a joint application for use by all the Services. JDP will provide the single theater air and missile defense automated system that aids Joint air defense duty officers and the Area Air Defense Commander (AADC) and staff in planning the integrated employment of Defensive Counter-Air and Active and Passive Defenses in conjunction with Offensive Counter-Air, to destroy or neutralize enemy aircraft and theater missiles. Development is compliant with the Defense Information Infrastructure (DII) Common Operating Environment (COE) for integration into Theater Battle Management Core System (TBMCS) and the Global Command and Control System (GCCS). Future efforts respond to evolving concepts advocated by the Aerospace C2 & Intelligence Surveillance Reconnaissance Center (AC2ISRC). Emphasis is on Distributed Collaborative Dynamic Battle Management of Expeditionary Aerospace Forces (EAFs) in areas such as planning, execution management, retasking (mission reflow), Effects-Based-Operations (EBO), campaign assessment, atmospheric and space environmental effects on weapons and surveillance systems, and information warfare in support of Joint, Combined and Coalition Theater Air Operations.</p>												
<p>(U) <u>FY 2000 (\$ in Thousands)</u></p>												
(U)	\$38	Completed initial DII COE FLEX coordinated replanning (reflow) prototype for TBMCS V2.X										
(U)	\$2,598	Continued Joint Defensive Planner (JDP) V2.0 software development										
(U)	\$307	Initiated integration activity for coordinated strategy-to-task for offensive (FLEX), Joint Defensive Planner (JDP), and information operations, including atmospheric environment impacts Prototypes for TBMCS V2.X										
(U)	\$46	Adapt Joint Defensive Planning, Air Tasking Order (FLEX) monitor and retasking for Battle Control Center										
(U)	\$2,989	Total										
<p>(U) <u>FY 2001 (\$ in Thousands)</u></p>												
(U)	\$1,400	Complete JDP software development and integration into TBMCS V 2.X										
(U)	\$490	Adapt JDP TBMCS V2.0 for GCCS-AF Integration										
(U)	\$588	Initiate effects based operations for joint aerospace operations										
(U)	\$993	Continue integration activity for coordinated strategy-to-task for offensive, defensive and information operations includingatmospheric environment impacts prototypes for TBMCS V2.X										
Project 2321			Page 12 of 20 Pages					Exhibit R-2A (PE 0603617F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications	PROJECT 2321
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(U) **A. Mission Description Continued**

(U) **FY 2001 (\$ in Thousands) Continued**

(U) \$552 Initiate decision aids for space environment impact effects on coordinated strategy-to-task for joint air operations

(U) \$4,023 Total

The following net transactions are not reflected in the FY01 program total: BTR = -148 K , ATR = 0 K, and SBIR -240 K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.

(U) **FY 2002 (\$ in Thousands)**

(U) \$0 No Activity

(U) \$0 Total

(U) **B. Project Change Summary**

Not Applicable

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) RDT&E, AF (0603789F, Project 2335)	4,093	2,557	5,087	0	0	0	0	0	0	11,737
(U) RDT&E, AF (0207438F, Project 4790)	23,007	20,439	18,120	0	0	0	0	0	0	61,566

(U) **D. Acquisition Strategy**

The Systems Division of the Air Force Research Laboratory's Information Directorate manages the acquisition of technology under the direct guidance of the AC2ISRC. The objective is to integrate into the Theater Battle Management Core Systems (TBMCS) through a Memorandum of Understanding (MOU) entitled 'Shared management of TBMCS Technology Development' with the TBMCS System Program Office (SPO). As nominated by the Air Staff, some applications are designed for integration into the Air Force Global Command and Control System (GCCS-AF). All contracts are awarded under full competition and include Cost Plus Fixed Fee (CPFF) and Cost Plus Award Fee (CPAF) as appropriate for advanced development efforts. All contracts use the Spiral Development Model and Evolutionary Prototyping, with heavy user participation from all the Services; and produce joint software applications, as designated by the JCS Joint Standard Air Operations Software Configuration Control Board.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603617F Command Control and Communication Applications	PROJECT 2321
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(U) **E. Schedule Profile**

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	
(U) Replanning (reflow) prototype demo	*								
(U) Joint Defensive Planner sw development & integration - EP #2/3			*						
(U) - Functional Validation Model #1 & 2					*	*			
(U) - TBMCS V x.x integration							X		
(U) Battle Control Center Evaluations.				*					
(U) Coordinated Strategy-to-task Spiral 1				*					
(U) Coordinated Strategy-to-task Spiral 2							X		
(U) Effects Based Operations Spiral 1							X		

Note: * represents a completed event; X represents a planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications			PROJECT 2321		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Software Development					2,363		2,803		
(U)	Government Engineering Support					397		857		
(U)	Contractor Engineering Support					229		363		
(U)	Total					2,989		4,023		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Logicon	C/CPFF	June 94	9,782	9,782	9,114	42				9,156
PRB Assoc.	C/CPAF	Feb 97	7,435	7,435	1,496	2,321	1,000			4,817
TBD						0	1,749			1,749
<u>Support and Management Organizations</u>										
AF Research Lab	In-house	N/A	N/A	TBD	27,423	397	915			28,735
Lockheed Martin						113	188			301
Litton/TASC						116	171			287
Miscellaneous	Various	Various	N/A	TBD						
<u>Test and Evaluation Organizations</u>										
Not Applicable										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)			DATE			
			June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation	0603617F Command Control and Communication Applications			2321		
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotals						
Subtotal Product Development	10,610	2,363	2,749			15,722
Subtotal Support and Management	27,423	626	1,274			29,323
Subtotal Test and Evaluation						
Total Project	38,033	2,989	4,023			45,045

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001																																			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications					PROJECT 3804																																		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																																	
3804	Tactical Air Forces Systems Integration	218	221	0	0	0	0	0	0	0	2,728																																	
<p>(U) <u>A. Mission Description</u> Provides systems engineering and integration support to the Aerospace Command Control & Intelligence Surveillance Reconnaissance Center (AC2ISRC) development efforts. Project addresses integration and interoperability issues associated with AC2ISRC directed efforts, makes recommendations, identifies deficiencies, and establishes requirements for development efforts.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$218 Initiates detailed analysis of strategy-to-task prototype tools for development and interoperability (See BPAC 64321) for technology transition within PE (U) \$218 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$221 Initiates detailed analysis of Effects-Based-Operations (EBO) prototype tools for development and interoperability (see BPAC 642321) for technology transition within PE (U) \$221 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>B. Project Change Summary</u> Not Applicable</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) Not Applicable</td> <td></td> </tr> </tbody> </table>													<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not Applicable																
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																		
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																			
(U) Not Applicable																																												
Project 3804		Page 17 of 20 Pages					Exhibit R-2A (PE 0603617F)																																					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)						DATE June 2001																																																		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603617F Command Control and Communication Applications			PROJECT 3804																																																	
<p>(U) <u>D. Acquisition Strategy</u> Not Applicable</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border: none;"> <thead> <tr> <th style="width: 40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Evaluate Strategy-To-Task prototypes</td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Evaluate effects based ops prototypes</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Note: * represents a completed event; X represents a planned event.</p>									<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Evaluate Strategy-To-Task prototypes				*									(U) Evaluate effects based ops prototypes									X			
	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>																																																	
	1	2	3	4	1	2	3	4	1	2	3	4																																												
(U) Evaluate Strategy-To-Task prototypes				*																																																				
(U) Evaluate effects based ops prototypes									X																																															
Project 3804			Page 18 of 20 Pages			Exhibit R-2A (PE 0603617F)																																																		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603617F Command Control and Communication Applications			PROJECT 3804			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>	
(U)	Systems Engineering				218		221			0	
(U)	Government Engineering Support										
(U)	Contractor Engineering Support										
(U)	Total				218		221			0	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
N/A											
<u>Support and Management Organizations</u>											
	MITRE	SS/TO&P	Various	N/A	TBD	2,138	0	0	0	0	2,138
	AF Research Lab/AC2ISRC	In-house	N/A	N/A	TBD	151	218	221	0	0	590
	Miscellaneous	Various	Various	N/A	TBD	0	0	0	0	0	0
<u>Test and Evaluation Organizations</u>											
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>											
Not Applicable											
<u>Support and Management Property</u>											
Not Applicable											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
04 - Demonstration and Validation		June 2001				
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
04 - Demonstration and Validation		0603617F Command Control and Communication Applications				3804
(U) Government Furnished Property Continued:						
<u>Test and Evaluation Property</u>						
Not Applicable						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
	<u>Subtotals</u>					
	Subtotal Product Development					
	Subtotal Support and Management	2,289	218	221	0	0
	Subtotal Test and Evaluation					
	Total Project	2,289	218	221	0	0
						2,728
						2,728

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603742F Combat Identification Technology					PROJECT 2597		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2597	Noncooperative Identification Subsystems	6,434	10,832	11,523	12,528	17,122	20,170	20,609	21,066	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>FY03-FY07 budget numbers do not reflect the DoD Strategic Review results.</p> <p>(U) A. Mission Description U.S. Combat Air Forces have a critical requirement to positively identify enemy, friendly, and neutral aircraft and battlefield equipment. The Combat Identification (CID) Capstone Requirements Document was approved by the JROC on 19 Mar 01 and clearly states this need. Multiple other Joint MNS, Air Force ORDs, and NATO requirements documents also state CID operational needs. High confidence & high probability of ID, all weather & day/night operational needs as well as timely and reliable CID will reduce fratricide, improve combat effectiveness, and enable battlespace commanders to effectively manage and control their forces.</p> <p>The Combat ID Technology program element investigates (studies & analyses), develops, demonstrates, and transitions (to EMD) promising target identification technologies. These technologies include both cooperative and non-cooperative techniques that improve our ability to positively identify ground and air targets (i.e. Air/Space-to-Surface, Surface-to-Surface, Surface-to-Air/Space and, Air/Space-to-Air CID).</p> <p>Examples of promising Air-to-Surface technologies include electro-optical (EO) systems that significantly increase ID ranges, exploitation of vibration signatures to increase probability and confidence of ground target ID and, potential maturation of algorithms to support Automatic Target Cueing and Automatic Target Recognition.</p> <p>Examples of Air-to-Air technologies include High Range Resolution (HRR) techniques to increase ID ranges as well as confidence and, improvements to the Mark XII system (specifically, implementation of mode V to enable robust, secure Identification Friend or Foe (IFF)</p> <p>(U) FY 2000 (\$ in Thousands)</p> <p>(U) \$900 Conduct High Range Resolution (HRR) algorithm validation, continue synthetic target database development, initiate transition of the synthetic target database to Air Force Information Warfare Center (AFIWC) and National Air Intelligence Center (NAIC) in preparation for fielding of the HRR capability and provide test support.</p> <p>(U) \$4,295 Continue development and demonstration of promising air-to-ground identification techniques for reduced battlefield fratricide and enhanced mission performance, including the ERASER program. Begin implementation of the Laser Vision program to demonstrate 2-D eyesafe laser imaging (ERASER) technology on an operational fighter targeting pod. Laser Vision is a continuation of the development of the enhanced</p>											
Project 2597		Page 1 of 7 Pages					Exhibit R-2 (PE 0603742F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603742F Combat Identification Technology	2597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	mission performance for the ERASER program.	
(U) \$354	Fund AIMS (Air Traffic Control Radar Beacon System, Identification Friend or Foe, Mark XII System) Program Office support of DoD Mark XII configuration control and next generation IFF (Identification, Friend or Foe) equipment integration with current IFF capabilities.	
(U) \$885	Provide for CID Integrated Management Team and engineering support for integration and management of Air Force CID programs, conducting related studies/demos to increase warfighter's CID capabilities.	
(U) \$6,434	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$2,494	Perform synthetic target database development in conjunction with the National Air Intelligence Center (NAIC). Conduct HRR algorithm maturation development & demonstration activities, and develop risk assessment and risk mitigation efforts to increase database fidelity.	
(U) \$461	Continue development and demonstration of other promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance, including the Enhanced Recognition and Sensing Laser Radar (ERASER) program (EO based).	
(U) \$5,632	Continue Laser Vision Phase I to demonstrate 2-D eyesafe laser imaging (ERASER) technology on an operational fighter targeting pod.	
(U) \$320	Fund required AIMS Program Office support of configuration control of Mark XII systems and next generation IFF equipment integration with current IFF (Mode IV) capabilities.	
(U) \$1,240	Provide for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.	
(U) \$685	Conduct CID related studies/demos, including those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.	
(U) \$10,832	Total	
	The following net transactions are not reflected in the FY01 program total: SBIR = -\$335K.	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$2,950	Continue the HRR synthetic target database development in conjunction with NAIC. Implement risk reduction measures to increase the fidelity of the HRR database and prepare to transition database management/maintenance from the lab environment to a SPO.	
(U) \$6,240	Continue development and demonstration of promising air-to-ground and air-to-air identification techniques for reduced battlefield fratricide and enhanced mission performance. Transition program candidates include the continued development and integration of ERASER/Laser Vision, begin baselining associated EO/ATC (Automatic Target Cueing)/ATR (Automatic Target Recognition) capability, begin Multi Vision military utility assessments/trade study to define a transition roadmap for the Joint Airborne Night Navigation and Attack (JOANNA) and related technologies, and continue to mature/harden camera technologies for flight environments. Potential other candidates could include the	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
04 - Demonstration and Validation	0603742F Combat Identification Technology	2597			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands) Continued</u>					
	Air-to-Ground Imaging (AGRI) technology.				
(U) \$730	Fund AIMS Program Office support of Mark XII systems to include next generation IFF equipment integration, including Mode V documentation and individual IFF system/box certification.				
(U) \$775	Provide for CID Integrated Management Team and other engineering support for integration and management of Air Force CID programs.				
(U) \$828	Conduct CID related studies/demos and conferences. Studies/demos will include those directed by the Joint Staff and OSD, to define higher fidelity requirements, wring out Tactics Techniques, and Procedures (TTPs) as they apply to new technologies, and otherwise analyze ways to increase warfighter's CID capabilities.				
(U) \$11,523	Total				
(U) <u>B. Budget Activity Justification</u>					
This program is in Budget Activity 4 - The PE includes advanced technology demonstrations that help transition technologies from laboratory to operational use.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)		7,334	10,933	11,495	
(U) Appropriated Value		7,334	10,933		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions					
b. Small Business Innovative Research		-222			
c. Omnibus or Other Above Threshold Reprogram		-163			
d. Below Threshold Reprogram		-486			
e. Rescissions		-29	-101		
(U) Adjustments to Budget Years Since FY 2001 PBR				28	
(U) Current Budget Submit/FY 2002 PBR		6,434	10,832	11,523	TBD
(U) <u>Significant Program Changes:</u>					
No significant program changes.					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603742F Combat Identification Technology	PROJECT 2597
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(U) D. Other Program Funding Summary (\$ in Thousands)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) None	0	0	0	0	0	0	0	0	0	0

(U) E. Acquisition Strategy

The High Range Resolution (HRR) database development program was awarded under a competitive bid process. Other combat identification efforts in project 2597 focus on developing and demonstrating the most promising Air-to-Ground Combat ID techniques and were contracted for under a competitive Request For Proposal (RFP) process. Laser Vision was awarded utilizing Other Transaction Agreement (OTA)s, which utilize the same competitive process of Request for Proposal (RFP), proposal submittal and negotiation of costs prior to award. FY02 activities are a continuation of FY01 efforts.

(U) F. Schedule Profile

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) 1. (U) HRR Platform Suite Efforts												
(U) Radar Enhancement Test Completion			*									
(U) DT&E Completion					X							
(U) OT&E Completion								X				
(U) 2. (U) HRR Classifier Dev/Qual												
(U) Denied Target Process Validation										X		
(U) Threat Target Build									X			
(U) AFRL Target Build									X			
(U) Stores Configuration Assessment												
(U) Data Collection Complete									X			
(U) Synthesis Production											X	
(U) Unknown Target Process												
(U) Initial Assessment								*				
(U) 3. (U) ERASER												
(U) Contract Award												
(U) Systems Requirements Review												
(U) Ground Based Demo of Flight H/W			*									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603742F Combat Identification Technology					PROJECT 2597			
(U) F. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Flight Demo of 1.06 micron system			*	*								
(U)	4. (U) LASER VISION												
(U)	Industry Days			*									
(U)	RFP Release			*									
(U)	Contract Award(s)			*									
(U)	System Integration & Ground Tests			*	*								
(U)	Flight Demo with Targeting Pod(s) & Analysis				*	*		*					
(U)	Start EO/ATC/ATR baselining effort											X	
(U)	Integration Activity Start										X		
(U)	Camera Development					*	*	X	X	X			
(U)	5. MULTI VISION TRADE STUDY												
	* denotes completed events												
	X denotes planned events												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603742F Combat Identification Technology			PROJECT 2597		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Analysis/Modeling and Simulation, Studies, Plans and Reports					0		517		828
(U)	Data Synthesis, Algorithm Development, Database Support					900		2,494		2,950
(U)	Hardware/Software and Prime Mission Product Development					3,985		2,743		6,240
(U)	IFF Equip Config Control, Certification & Integration Support					354		320		730
(U)	CID Training, Travel, & Operations					885		1,408		775
(U)	Flight Test					310		3,350		0
(U)	Total					6,434		10,832		11,523
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Raytheon Co, El Segundo CA	CPFF	Nov 98	12,625	12,625	0	0	900	860	Continuing	TBD
Veridian (Veda) Dayton, OH	CPFF	Aug 98	13,000	13,000	0	475	473	200	Continuing	TBD
Simulation Support, Inc.	CP	May 99	330	330	0	0	0	0	330	330
National Air Intel Center	AF616	Annually	3,329	3,329	3,329	0	0	0	0	3,329
Northrop Grumman Corp	CPFF	Aug 93	2,270	2,270	1,956	0	0	0	Continuing	TBD
ERASER-Raytheon, Plano TX	CPFF	Dec 97	5,532	5,532	1	970	461	1,000	Continuing	TBD
Raytheon Co, El Segundo	OTA	Mar 00	1,100	1,100	0	950	150	1,333	Continuing	TBD
Lockheed Martin, Orlando	OTA	Mar 00	1,100	1,100	0	950	150	1,334	Continuing	TBD
Northrup Grumman, Rolling Meadows, IL	OTA	Mar 00	1,100	1,100	0	950	150	1,333	Continuing	TBD
Demaco	CPFF	Aug 94	9,004	9,004	6,604	0	0	0	0	6,604
SAIC (Demaco, Inc)	CPFF	May 99	2,210	2,210	0	475	0	500	Continuing	TBD
Cyberdynamics	CPFF	May 99	2,112	2,112	0	0	0	0	2,112	2,112

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
04 - Demonstration and Validation										June 2001
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
04 - Demonstration and Validation					0603742F Combat Identification Technology					2597
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
AIMS Program Office	MIPR	Annual	N/A	N/A	634	354	320	730	Continuing	TBD
Wright Laboratory (Camera & ATR development)	MIPR	Jan 01	N/A	N/A	0	0	2,000	1,809	Continuing	TBD
Wright Laboratory (LV)	MIPR	N/A	N/A	N/A	0	160	1,353	0	Continuing	TBD
<u>Support and Management Organizations</u>										
USAF Combat ID IMT and Engineering Support	Various	N/A	N/A	N/A	2,850	780	1,465	842	Continuing	TBD
Wright Laboratory (HRR)	MIPR	N/A	4,000	4,000	2,332	50	60	70	Continuing	TBD
FT Belvoir	MIPR	N/A	N/A	N/A	0	10	0	0	0	10
<u>Test and Evaluation Organizations</u>										
3246th Test Wing, Eglin AFB, Mixed, CPF, FL 544th Range Group, Nellis AFB, NV		N/A	3,769	3,769	2,319	0	1,350	1,512	Continuing	TBD
412 Test Wing, Edwards AFB	MIPR	N/A	1,605	1,605	0	310	2,000	0	Continuing	TBD
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					12,524	5,284	5,957	9,099	TBD	TBD
Subtotal Support and Management					5,182	840	1,525	912	TBD	TBD
Subtotal Test and Evaluation					2,319	310	3,350	1,512	TBD	TBD
Total Project					20,025	6,434	10,832	11,523	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NATO		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
NATO	Nato Coop R&D	4,091	5,458	5,616	5,721	5,867	5,912	6,203	6,265	0	0
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> These funds will be used to help implement international cooperative research, development, and acquisition (ICRD&A) agreements with North Atlantic Treaty Organization (NATO) and major non-NATO allies (Argentina, Australia, Egypt, Israel, Japan, Jordan, and Rep. of Korea (South Korea)). The program implements the provisions of Title 10 U.S. Code, Section 2350a on NATO Cooperative Research and Development (R&D). The program was established to improve cooperation among NATO nations, and later major non-NATO allies, in research, development, and acquisition. The legislation authorized funds to significantly improve United States (US) and allied conventional defense capabilities by leveraging the best defense technologies, eliminating costly duplication of R&D efforts, accelerating the availability of defense systems, and promoting US and allied interoperability or commonality. Starting in FY01 these funds have focused on implementing coalition warfare technology and demonstrations that address Air Force space, command, control, communications, intelligence, surveillance, and reconnaissance (C3ISR), modernization and readiness needs in support of the National Military Strategy, Joint Vision 2020, and the Air Force's Strategy of Global Engagement. The planned program is shown below. The program will be reported as required by Title 10 U.S. Code, Section 2350a(f). This program element funds the implementation of Air Force ICRD&A agreements in (1) Basic Research (2) Applied Research (3) Advanced Technology Development (4) Demonstration and Validation (5) Engineering and Manufacturing Development and (6) RDT&E Management Support.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$312 Advanced Combustion Chamber Concepts Program (Air Force Research Laboratory (AFRL)/France) - Ongoing cooperative project to develop and demonstrate a composite combustor structure suitable for use in advanced hypersonic weapon system operation to Mach 8 on liquid hydrocarbon fuels. Engines using this type of composite structure are simpler, easier to cool, lower in weight, and more durable than baseline metallic designs. During FY00, fabrication of a composite panel was completed. During preliminary testing, the panel developed leaks. The panel will be reworked, and testing is to take place in late FY01.</p> <p>(U) \$400 Aging Aircraft Life Prediction/Extension (AFRL/Australia) - Ongoing cooperative project to investigate the damage that can degrade an aircraft's service life, and develop the technology to ensure the structural integrity of aging aircraft with such damage present. This project is focused on composite patch repairs of metallic structures, widespread fatigue damage including multiple-element damage and multiple site damage, techniques for predicting the effects of corrosion and the interaction with fatigue loads, and sensors for structural health monitoring. In FY00,</p>											
Project NATO				Page 1 of 23 Pages				Exhibit R-2 (PE 0603790F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
(U) \$250	<p>the project completed documenting experience with widespread fatigue damage and composite patch repairs, continued developing analysis techniques for corrosion/fatigue, continued evaluating composite patch repair and analysis techniques, and performed in-service evaluation of corrosion sensor. Two AFRL technical reports have been sent to the Australian technical team.</p> <p>Airworthiness of Aging Aircraft (AFRL/UK) - Ongoing cooperative project to investigate the damage that can degrade an aircraft's service life, and develop the technology to ensure the structural integrity of aging aircraft with such damage present. This project is focused on composite patch repairs for metallic structures, techniques for predicting the effects of corrosion and the interaction with fatigue loads, and structural life extension techniques for metal structures, such as the fastener-hole cold expansion process. In FY00, the project continued analysis techniques for corrosion/fatigue and continued developing analysis techniques for life enhancement and composite patch repairs. Two AFRL technical reports have been sent to the UK technical team.</p>	
(U) \$300	<p>Anthropometric Accommodation in Crew Systems (AFRL/The Netherlands) - Ongoing cooperative project to establish: (1), a collection of three dimensional (3D) anthropometric data which accurately and consistently describes the variability of men and women in both Europe and the US; (2), high quality methods for accommodation and interoperability assessment of crew systems; and (3), methods for combining the database with the assessment methods to assure accommodation and interoperability are achieved in the design process. In FY00, the project finished the European data collection, the model assessment of the aircraft crew stations, and began accommodation effect assessments using US and European data sets.</p>	
(U) \$100	<p>Advanced Transmission Language and Allocation of New Technology for International Communication and Proliferation of Allied Waveforms (ATLANTIC PAW) (AFRL/France, Germany, UK) - Ongoing cooperative project to allow joint compliance testing which will be conducted with multinational communication assets to assure interoperability on a functional level. This will be conducted by using the previously designed Future Multiband, Multiwaveform, Modular Tactical Radio (FM3TR) waveform and newly designed multinational radio platforms. In FY00, compliance testing verified the interoperability of the basic equipment that is required for the ATLANTIC PAW effort. Modifications resulting from the compliance testing are being integrated. The initial design and tool characterization of the international waveform interpreter and language development also commenced.</p>	
(U) \$75	<p>Challenging Mini-Satellite Payload (CHAMP) (formerly Cooperative Space Measurements) (AFRL/Germany) - Ongoing cooperative project to fly a DoD developed Digital Ion Drift Meter (DIDM) (space plasma detector) aboard a German scientific spacecraft beginning in 2000. Joint exchange and analysis of scientific data from this mission will be used to develop better descriptive and predictive models of the space environment, enhancing the reliability of space-based communications and navigation capabilities for the US and its allies. In July 2000, the instrument was launched aboard the CHAMP scientific spacecraft. The instrument is operating as designed, generating valuable data, and cooperative data analysis efforts are continuing.</p>	
Project NATO	Page 2 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY		PROJECT
04 - Demonstration and Validation		June 2001
PE NUMBER AND TITLE		PROJECT
0603790F NATO Cooperative R&D		NATO
(U)	<u>A. Mission Description Continued</u>	
(U)	<u>FY 2000 (\$ in Thousands) Continued</u>	
(U)	\$250	Coalition Command, Control and Communications (C3) Demonstration Environment (CC3DE) (AFRL/Australia, Canada, UK) - Ongoing cooperative project to improve the efficiency of future coalition operations capabilities through the development of interoperable C3. This project is exploring the effective management of information system resources in a coalition environment. It is developing a management architecture for the coalition environment, and developing the tools to implement this architecture. In particular, Asynchronous Transfer Mode (ATM) technology is being integrated into a Broadband-Integrated Services Digital network (B-ISDN) in efforts to form a common international standard for networking. In FY00, the test bed setup work started to verify operational compatibility. Integration of network management technologies is proceeding as development progresses.
(U)	\$450	Distributed Mission Training (DMT) Technologies (AFRL/Canada) - Ongoing cooperative project to develop DMT technologies that will enhance allied simulator based training of US and Canadian fighter aircrews and demonstrate proof of concept. DMT refers to shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. In FY00, the project initiated efforts to convert and rehost CF-18 software to multi-task trainer format, and continued visual perception and engineering research efforts to specify design requirements for ultra-high resolution visuals for DMT flight simulators.
(U)	\$213	Effects of the Ionosphere on Command, Control, Communications, and Intelligence (C3I) Systems (AFRL)/United Kingdom (UK) - Ongoing cooperative project to leverage complementary ionospheric sensors and data to develop capabilities for timely warning of ionospheric disturbances that disrupt C3I systems. In FY00, the concepts underlying a rapidly deployable Space Weather Station, employing real-time data from a variety of ionosphere sensors, integrated with radiowave propagation codes and signal-coverage displays, were demonstrated to a number of potential operational Department of Defense (DoD) users. In addition, an ionosphere scintillation monitoring system was installed in the Middle East, thereby greatly increasing the coverage of the so-called SCINDA technique for real-time specification of equatorial ionosphere disturbance conditions that will impact C3I systems and operations.
(U)	\$216	Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay (AFRL/Australia) - Ongoing cooperative project to validate separation simulation codes for the release of miniature munitions from internal weapons bays at both subsonic and supersonic airspeeds. The Royal Australian Air Force (RAAF) F-111G is the only available operational fighter/bomber, with an internal bay, capable of dropping internally carried munitions at subsonic and supersonic velocities. In FY00, validated trajectory simulation codes that will support the store certification efforts for aircraft such as the F-22, Joint Strike Fighter, and Unmanned Combat Air Vehicles.
(U)	\$100	Free Piston Shock Tunnel (FPST)/High Enthalpy Goettingen (HEG) Project (Arnold Engineering and Development Center (AEDC)/Germany) - Ongoing cooperative project to significantly reduce the cost of acquiring technologies and ground test capabilities for the development of hypersonic flight systems by combining the complementary efforts of the US FPST and Germany's HEG facilities. In FY00, final evaluation of non-intrusive diagnostics in the laboratory shock tunnel and additional development of the pulsed electron beam system in the laboratory shock
Project NATO		Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	tunnel was completed. Final data reduction and final report preparation is underway.	
(U) \$150	Future Multiband, Multiwaveform Modular Tactical Radio (FM3TR) AFRL/France, Germany, United Kingdom) - Just completed cooperative project that defined, tested, and implemented a system to share new communications waveforms and technologies for implementation on the different nations' software-based and reprogrammable radio systems. In FY00, the interoperability of a common test waveform across the various unique radio platforms, including the US SPEAKEasy system, was demonstrated. SPEAKEasy was a joint program which directly fed into the Joint Tactical Radio System (JTRS) that has provided a multi-functional radio capable of satisfying many communications requirements currently being addressed by separate, non-interoperable systems. The end result will be the fielding of a superior, flexible and interoperable communications asset that will play a critical role in international military coalitions.	
(U) \$500	Integrated Tactical Aircraft Control (ITAC) Program (AFRL/France) - Ongoing cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised of manned and uninhabited combat air vehicles (UCAVs). The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. The design approach is based on software agents. In FY00, work continued in the development and refinement of the agent/algorithms. Functional descriptions of the agents and their interrelationships was further refined. A draft System/Subsystem Specification (SSS) and Interface Control Document (ICD) were developed. Initial measures of merit and performance were developed.	
(U) \$375	Scintillation Impacts on Communication and Navigation Systems (AFRL/Australia) - Ongoing cooperative project to exchange data, deploy current sensors, develop improved sensors, and tailor current decision aids, including software, which relate to ionospheric phenomena and their effect on C3I systems. This project will provide the US critical access to data in regions of strategic interest in South East Asia and the South Pacific where large ionospheric disturbances routinely occur. FY00, activities included the deployment of sensors for monitoring scintillation on UHF Satellite Communication links at existing Australian sites. Real-time data retrieval has been implemented at these sites for ready data access and prototype operational support. Routine data collection is ongoing.	
(U) \$350	Structural Integrity of Aging Aircraft (AFRL/Canada) - Ongoing cooperative project to investigate the damage that can degrade an aircraft's service life, and develop the technology to ensure the structural integrity of aging aircraft with such damage present. This project is focused on composite patch repairs for metallic structures, widespread fatigue damage, life extension techniques for metallic structures, corrosion and its interaction with fatigue, structural dynamics with emphasis on weapon bay acoustics, and structural health monitoring with emphasis on sensor development. In FY00, the project developed analytical models for widespread fatigue damage and corrosion/fatigue, completed evaluation of composite patch repair techniques, and identified in-service dynamic problems. Three AFRL technical reports are being prepared to be sent to the Canadian technical team.	
(U) \$50	Three Dimensional Multilayer Microwave Integrated Circuit (3DIC) Technology Development (AFRL/Rep. of Korea) - This ongoing cooperative	
Project NATO	Page 4 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	project is developing new multi-layer microwave packaging and interconnect sub-assembly technologies applicable to a broad range of critical defense needs. This cooperative effort is focused on multi-layer dielectric interconnect technology--thin multiple dielectric layers with vertical interconnects. During FY00, the US and Korean 3DIC project teams worked jointly on a one to four, 3-D Wilkinson divider/combiner. By designing and building a component used in high performance assemblies using 3-D techniques, the uniqueness and advantages of 3-D technology over the more common planar approaches for select components is being demonstrated.	
(U) \$4,091	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$350	Air Command, Control, Communications and Intelligence (C3I) Capabilities (Electronic Systems Center (ESC)/NATO Consultation, Command, and Control (C3) Agency) - Planned cooperative project to develop an operationally robust interface between the US Contingency Theater Automated Planning System/Theater Battle Management Core System (CTAPS/TBMCS) and NATO Initial Combined Air Operations Center (CAOC) Capability (ICC) as well as the future NATO Air Command and Control System (ACCS). This cooperative R&D effort will support air campaign planning and execution for joint and combined air operations. In FY01, the scope of work to be accomplished includes advanced R&D into shared data environment, developing a concept of operation for the transfer of control between national and NATO Command, Control, Communications, Computers and Intelligence (C4I) systems without interrupting combat operations; and the extension of a middle-ware/translator product needed for the successful prosecution of a combined/joint air operation.	
(U) \$300	Anthropometric Accommodations in Crew Systems (AFRL/The Netherlands) - Ongoing cooperative project to establish: (a), a collection of three-dimensional (3-D) anthropometric data which accurately and consistently describes the variability of men and women in both Europe and the US; (b), high quality methods for accommodation and interoperability assessment of crew systems; and (c), methods to assure accommodation and interoperability are achieved in the design process. In FY01, US and Dutch anthropometric data collection was completed. Data processing is ongoing. The first phase of postural studies have been completed; further postural data collection is ongoing.	
(U) \$550	ATLANTIC PAW (AFRL/France, Germany, UK) - Ongoing cooperative project to develop a common waveform syntax allowing for joint allied communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY01, the waveform interpreter design has commenced, and initial specifications of the waveform language are being developed. Preliminary testing of portions of the system components is being performed to mitigate integration risks. Activities are beginning to address the shortfalls in tool capability.	
(U) \$500	Coalition Aerial Surveillance And Reconnaissance (CAESAR) (ESC/Canada, France, Germany, Italy, Norway, UK) - Planned cooperative project to develop and evaluate technologies for the integration of diverse Ground Moving Targeting Indicator (GMTI)/Synthetic Aperture Radar (SAR) platforms to promote interoperability amongst multiple participants to support coalition warfare operations. The project will enable all	
Project NATO		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	
		PROJECT NATO
(U)	<u>A. Mission Description Continued</u>	
(U)	<u>FY 2001 (\$ in Thousands) Continued</u>	
	participants to collaboratively develop the architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements. In FY01, this project will focus on developing interoperability amongst surveillance and reconnaissance assets of participating nations.	
(U) \$500	CC3DE (AFRL/Australia, Canada) - Ongoing cooperative project to improve the efficiency of future coalition operations capabilities through the development of interoperable C3. This project will initially explore the effective management of information system resources in a coalition environment. It will develop a management architecture for the coalition environment, and develop the tools to implement this architecture. In particular, ATM technology will be integrated into a B-ISDN in efforts to form a common international standard for networking. In FY01, the project is continuing to finalize the testbed setup between nations to verify operational compatibility. Integration of network management technologies is being applied as development progresses.	
(U) \$100	Cooperative Research and Development Efforts in Imaging Spectrometer Development (Arnold Engineering and Development Center/Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of missiles and aircraft, and for identifying trace quantities of a broad spectrum of gases in the environment. In FY01, work continued to enhance the data acquisition and viewing software. Components for the brassboard system, including a commercial IR camera and an existing spectrometer, are being assembled and integrated.	
(U) \$500	DMT Technologies (AFRL/Canada) - Ongoing cooperative project to develop DMT technologies that will enhance allied simulator based training of US and Canadian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. In FY01, the project is completing software conversion and rehost efforts, developing a DMT control station, initiating modernization enhancements and aircraft hardware/emulation integration to the CF-18 Multi-Task Training (MTT), and continuing visual research and development activities.	
(U) \$400	Effects of Ionization on Hydrocarbon-Air Combustion (AFRL/UK) - This ongoing cooperative project is a joint effort in the research and development of high-speed liquid hydrocarbon fueled airbreathing propulsion technology. This will be accomplished by exploiting the benefits of weak ionization in enhancing the reactivity of hydrocarbon fuels. Plasma technology will be examined for its utility in improving ignition and piloting for hydrocarbon combustors. In FY01, laboratory experiments were conducted and results are being analyzed to validate and/or improve the existing kinetic model of ion-enhanced hydrocarbon combustion. Planning is underway for experiments to be conducted in the Air Force Research Lab scramjet test facility within the next two months. These tests will explore the effectiveness of several plasma torch designs and configurations.	
(U) \$200	Effects of the Ionosphere on C3I Systems (AFRL/UK) - Ongoing cooperative project to leverage complementary ionospheric sensors and data to develop capabilities for timely warning of ionospheric disturbances that disrupt C3I systems. In FY01, a new sensing technique employing High	
Project NATO	Page 6 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$354	Frequency (HF) ionosounding data to provide (advanced) forecasts of ionospheric disturbance conditions that will affect C3I systems and operations is being demonstrated; and HF radio wave propagation data and ionosphere total-electron-content (tomography) data is being used to validate the Space Weather concept for real-time specification of the in-theater battlespace environment affecting C3I systems and operations. Engine Component Life Extension (AFRL/Australia) - Planned cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY01, existing life prediction models will be evaluated to determine specific avenues for improvement, and identify gaps in material databases.	
(U) \$100	Flight Test Demonstration of Miniature Munitions Release from Internal Weapons Bay (AFRL/Australia) - Ongoing cooperative project to validate separation simulation codes for the release of miniature munitions from internal weapons bays at both subsonic and supersonic airspeeds. The Royal Australian Air Force (RAAF) F-111G is the only available operational fighter/bomber, with an internal bay, capable of dropping internally carried munitions at subsonic and supersonic velocities. In FY01, flight testing was conducted and completed, including release of 16 small smart bomb shapes. Data reduction and analysis is ongoing, and will be compiled for a final report.	
(U) \$570	High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV) Cooperative Analysis, Development and Operational Demonstration (Aeronautical Systems Center/Australia) - Ongoing cooperative project to demonstrate the Out of Continental United States (OCONUS) deployment capability of the US Global Hawk HAE UAV, advance surveillance technology and interoperability, and enhance operational utility assessments of the US HAE UAV Advanced Concept Technology Demonstration (ACTD). In FY01, the US deployed the Global Hawk to Australia, demonstrated, and is assessing the system's operational effectiveness in a maritime and littoral environment.	
(U) \$400	ITAC Program (AFRL/France) - Ongoing cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised of UCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. In FY01, agent integration and development refinement will continue culminating in a world station based on real-time and real-time simulations. The measures of merit and performance metrics will be evaluated and refined. Baseline performance for autonomous, intelligent control will be established. System mechanization for a real-time, operator in the loop simulation will be initiated.	
(U) \$200	Refraction and Propagation Modeling for Microwave Systems (AFRL/Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurement of refraction, and Airborne Warning And Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY01, testing and validation will be conducted to determine the adverse performance of microwave and infra-red systems that perform surveillance, communication, signal intelligence, and directed energy functions in electronic battlespace.	
Project NATO	Page 7 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$300	Scintillation Impacts on Communication and Navigation Systems (AFRL/Australia) - Ongoing cooperative project will exchange data, deploy current sensors, develop improved sensors, and tailor current decision aids, including software, which relate to ionospheric phenomena and their effect on C3I systems. This project will provide the US critical access to data in regions of strategic interest in South East Asia and the South Pacific where large ionospheric disturbances routinely occur. In FY01, data collection is continuing and additional sites are being brought on-line; characterization of ionospheric disturbances in the region and assessment of their impacts on space-based navigation, communications and surveillance systems is being conducted. An intensive multiple-diagnostic measurement campaign is being performed during active scintillation periods to enhance our understanding of the physical mechanisms leading to the development of severe equatorial disturbances.	
(U) \$34	Space Radiation Sensors (AFRL/UK) - Planned cooperative project to validate the performance of a key Air Force spacecraft instrument for the measurement of space environment radiation hazards. The instrument's capability of issuing real-time space hazard warnings will be tested under a variety of conditions encountered in space aboard a joint US/UK satellite mission. In FY01, the project will develop the preliminary space radiation data base using the US and UK instruments. Final verification of the US instrument's calibration will be performed using the preliminary database.	
(U) \$100	Management and administrative support and travel.	
(U) \$5,458	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$493	Advanced Hybrid Propulsion Technologies (AHPT) (AFRL/Japan) - This ongoing cooperative project is researching and exploring technologies for an advanced hybrid rocket engine propulsion system to increase the performance, safety and reliability of future tactical missiles. The technologies include liquid oxidizers, gas generator fuels, and flow control systems. This activity will enable the demonstration of a forward injected gas generator hybrid rocket engine with energy management. Sub-systems of the full-scale test hardware are being manufactured and assembled. Test planning for the full-scale tests is ongoing. In FY02, activities will include study of hybrid ignition, completion of test components and their integration, test firings, data collection, data analysis, and final report generation.	
(U) \$100	Air C3I Capabilities (ESC/NATO C3 Agency) - Planned cooperative project to develop a fieldable interface between the US CTAPS/TBMCS and NATO Initial CAOC (ICC) and the future NATO ACCS. This cooperative R&D effort will support air campaign planning and execution for joint and combined air operations. In FY02, work will focus on: (a), productizing the C2 interface between the then fielded systems; (b), harmonization of system data base structures as part of the shared data environment; and (c), evaluating and implementing the reuse of appropriate functional module.	
(U) \$640	ATLANTIC PAW (AFRL/France, Germany, UK) - Ongoing cooperative project to develop a common waveform syntax allowing for joint allied	
Project NATO	Page 8 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	communications that will be demonstrated on programmable radio systems in each of the participating nations. In FY02, the waveform interpreter design and the initial specifications of the waveform language will be completed, and rehosted on the US development equipment. The development environment will be completed and used for an international demonstration.	
(U) \$1,500	Coalition Aerial Surveillance And Reconnaissance (CAESAR) (ESC/Canada, France, Germany, Italy, Norway, UK) - Planned cooperative project to develop and evaluate technologies for the integration of diverse Ground Moving Targeting Indicator (GMTI)/Synthetic Aperture Radar (SAR) platforms to promote interoperability amongst multiple participants to support coalition warfare operations. The project will enable all participants to collaboratively develop the architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements. In FY02, this project will continue to focus on developing interoperability amongst surveillance and reconnaissance assets of participating nations, and develop architecture and interoperability framework, key interfaces, and formats needed to meet coalition warfare requirements.	
(U) \$50	CC3DE (AFRL/Australia, Canada) - Ongoing cooperative project to improve the efficiency of future coalition operations capabilities through the development of interoperable C3. This project will initially explore the effective management of information system resources in a coalition environment. It will develop a management architecture for the coalition environment, and develop the tools to implement this architecture. In particular, ATM technology will be integrated into a B-ISDN in efforts to form a common international standard for networking. In FY02, the project will continue to network management integration to completion. C3I applications will be tested to demonstrate the effectiveness of the developed network management capability.	
(U) \$250	Cooperative Research and Development Efforts in Imaging Spectrometer Development (Arnold Engineering and Development Center/Canada) - Ongoing cooperative project to pool the spatial and spectral advances of both the US and Canada to produce a hyperspectral infrared (IR) imaging spectrometer. This high-resolution sensor system will be capable of characterizing signatures of rockets and aircraft for drug interdiction and for identifying trace quantities of a broad spectrum of gases in the environment. In FY02, work will continue to enhance the data acquisition and viewing software. The brassboard system will be assembled and integrated. Portions will be ruggedized in preparation for field testing.	
(U) \$250	Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies (AFRL/Australia) - Planned cooperative project to develop DMT and VAE technologies that will enhance allied simulator based training of US and Australian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. The Australian VAE program will establish a training capability for the Air Defence System using networked simulated and constructive forces. The cooperative project will merge efforts being conducted under these complementary programs. In FY02 the project will initiate efforts to (1) develop Australian F-18 multi-task trainers, (2) conduct visual perception and engineering research efforts to specify design requirements for ultra-high resolution visuals for DMT flight simulators, and (3) initiate	
Project NATO	Page 9 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	collaborative long-haul networking and constructive forces development activities.	
(U) \$250	DMT Technologies (AFRL/Canada) - Ongoing cooperative project to develop DMT technologies that will enhance allied simulator based training of US and Canadian fighter aircrews and demonstrate proof of concept. DMT refers to a shared training environment comprised of live, virtual, and constructive simulations allowing warfighters to train individually or collectively at all levels of war. In FY02, the project will complete development of a DMT control station, select and integrate a visual system to the CF-18 MTT, continue modernization enhancements and aircraft hardware/emulation integration to the CF-18 MTT, finalize joint operability test procedures, and continue visual research and development activities.	
(U) \$400	Engine Component Life Extension (AFRL/Australia) - Planned cooperative project to develop life extension techniques and strategies that can be applied to advanced military engines. The engines involved include the US Air Force F100, -220, -229 and F101 and Australia's TF30, F404 and T700. Much of the technology will be generic and flow from one engine to another. In FY02, full-life engine parts will be examined using nondestructive evaluation (NDE) tools and destructive analysis to identify typical populations of crack-like damage; appropriate time-temperature-stress profiles will be developed to best simulate engine operating conditions; mechanical testing will be performed for use in developing improved fatigue crack growth algorithms; development of NDE techniques for characterization of residual stress profiles will begin; activities to address the shortfalls in life prediction capabilities will begin.	
(U) \$700	ITAC Program (AFRL/France) - Cooperative project to develop, integrate and demonstrate critical flight control and flight management technologies that enable cooperative flight operations of a package comprised of UCAVs. The cooperative control architecture enables management and control of an integrated strike package by the aircrews in the combat aircraft. In FY02, real-time operator in the loop simulations will be conducted. Evaluation of a flight operations package will be performed to evaluate the robustness of ITAC. Interface control documents and software will be delivered. A joint, interactive demonstration, in which an operator can select levels of autonomy, performance and coordination, will be developed for demonstration in an international forum.	
(U) \$50	Refraction and Propagation Modeling for Microwave Systems (AFRL/Australia, UK) - Planned cooperative project to combine a low cost aircraft measurement platform for simultaneous measurement of refraction, and Airborne Warning And Control System (AWACS) radar signal strength reduction with parabolic equation methods of microwave propagation modeling for evaluation and prediction of refraction conditions. In FY02, testing and validation will continue to be conducted to determine the adverse performance of microwave and infra-red systems that perform surveillance, communication, signal intelligence, and directed energy functions in electronic battlespace.	
(U) \$300	Scintillation Impacts on Communication and Navigation Systems (AFRL/Australia) - Ongoing cooperative project will exchange data, deploy current sensors, develop improved sensors, and tailor current decision aids, including software, which relate to ionospheric phenomena and their effect on C3I systems. This project will provide the US critical access to data in regions of strategic interest in South East Asia and the South	
Project NATO	Page 10 of 23 Pages	Exhibit R-2 (PE 0603790F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																			
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603790F NATO Cooperative R&D	PROJECT NATO																																			
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p style="padding-left: 40px;">Pacific where large ionospheric disturbances routinely occur. In FY02, data collection will be completed, and characterization of ionospheric disturbances in the region and assessment of their impacts on space-based navigation, communications and surveillance systems will be concluded.</p> <p>(U) \$100 Space Radiation Sensors (AFRL/UK) - Planned cooperative project to validate the performance of a key Air Force spacecraft instrument for the measurement of space environment radiation hazards. The instrument's capability of issuing real-time space hazard warnings will be tested under a variety of conditions encountered in space aboard a joint US/UK satellite mission. In FY02, the project will begin the development of the final radiation database.</p> <p>(U) \$433 Strike Warrior (AFRL/UK) - This planned cooperative project is to develop, demonstrate, and test interface technology and concepts for future advanced strike aircraft. It is a follow-on to the Vista Warrior project. The Strike Warrior project will increase the pilot's tactical capabilities with improvements in two related aspects of interface design. First, the interface hardware will be developed to enable better presentation of a larger variety of mission data. This will include large area cockpit displays linked with advanced interface technologies. Second, new approaches to real-time human engineering will be developed to allow the pilot to manage the new display capabilities and information. In FY02, the project will begin with an evaluation of an unmanned combat air vehicle operator's station.</p> <p>(U) \$100 Management and administrative support and travel.</p> <p>(U) \$5,616 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This PE is designated in Budget Activity 4 because most of the ICRD&A projects support specific systems, include all efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology, and help expedite technology transition from the laboratory to operational use.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">4,222</td> <td style="text-align: center;">5,509</td> <td style="text-align: center;">5,616</td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">4,283</td> <td style="text-align: center;">5,509</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: center;">-27</td> <td style="text-align: center;">-39</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: center;">-131</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	4,222	5,509	5,616	0	(U) Appropriated Value	4,283	5,509			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-27	-39			b. Small Business Innovative Research	-131				c. Omnibus or Other Above Threshold Reprogram				
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Project NATO	Page 11 of 23 Pages	Exhibit R-2 (PE 0603790F)																																			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation						PE NUMBER AND TITLE 0603790F NATO Cooperative R&D						PROJECT NATO		
(U) C. Program Change Summary (\$ in Thousands) Continued														
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>Total Cost</u>		
	d. Below Threshold Reprogram					-34		-12						
	e. Rescissions													
(U)	Adjustments to Budget Years Since FY 2001 PBR													
(U)	Current Budget Submit/FY 2002 PBR					4,091		5,458		5,616		TBD		
(U)	<u>Significant Program Changes:</u> Change Summary Explanation: N/A													
(U) D. Other Program Funding Summary (\$ in Thousands)														
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>			
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U)	Program Management													
(U) E. Acquisition Strategy														
A principal goal of the NATO Cooperative R&D program is to effectively utilize the aggregate resources invested by the US and our allies in conventional defense R&D. This program element provides the critical funding incentive needed to pursue ICRD&A agreements and helps to (a) leverage USAF and allied resources through cost sharing and economies of scale; (b) exploit the best US and allied technologies for equipping coalition forces; (c) demonstrate areas of commonality or interoperability with our allies; and (d) accelerate the availability of defense technology and systems. Candidate projects are reviewed and approved by the USD(A&T). An international agreement defining project objectives, responsibilities and costs is required prior to release of funds. To obtain these funds and ensure service commitment, projects are selected from existing or new RDT&E programs funded in the Future Years Defense Plan (FYDP). Project offices must show matching funds and contributions from associated program elements and equitable allied funding. As appropriate, funding responsibility for out-year requirements and follow-on efforts are transferred to the project office and associated program elements. Most contracts are awarded after full and open competition.														
(U) F. Schedule Profile														
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>				
						1	2	3	4	1	2	3	4	
(U)	Effects of the Ionosphere on C3I Systems Project													
(U)	- Expand C3I outage alert coverage to include Middle East sector							X						
(U)	- Develop HF sounding technique to forecast scintillation conditions								X					
(U)	- Field demonstration of HF scintillation forecasting technique									X	X			
Project NATO						Page 12 of 23 Pages						Exhibit R-2 (PE 0603790F)		

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NATO			
(U) <u>F. Schedule Profile Continued</u>	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) - Identify fatigue life enhancement techniques				X									
(U) Airworthiness of Aging Aircraft Project													
(U) - Document corrosion/fatigue service	X	X	X										
(U) - Develop life enhancement analysis techniques				X	X	X							
(U) - Conduct experiments					X	X							
(U) Aging Aircraft Life Prediction/Extension Project													
(U) - Eval composite patch analysis techniques for metallic structures	X	X											
(U) - Flight tests			X										
(U) - Develop corrosion/fatigue analysis techniques	X	X	X	X	X								
(U) Cooperative R&D Efforts in Imaging Spectrometer Development Project													
(U) - Brassboard development		X	X	X	X	X	X						
(U) - Brassboard checkout				X	X	X	X	X					
(U) - Instrument design				X	X	X							
(U) - Instrument fabrication					X	X	X	X					
(U) - Lab instrument checkout								X	X				
(U) - Prototype checkout											X	X	
(U) - Instrument ruggedization												X	
(U) FPST/HEG Project													
(U) - Data analysis	X	X	X	X									
(U) - Exchange consultations		X											
(U) - Exchange instrumentation and diagnostic articles		X											
(U) - Produce final report					X	X	X	X					
(U) Effects of Ionization on Hydrocarbon Combustion Project													
(U) - Complete reaction rate measurements						X							
(U) - Design plasma generator							X						
(U) - Begin updating computational tools							X	X					

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NATO			
(U) <u>F. Schedule Profile Continued</u>	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) - Complete computational tools									X				
(U) - Begin combustion experiments									X	X	X		
(U) - Complete combustion experiments												X	
(U) - Data analysis and model validation												X	
(U) - Final report												X	
(U) CHAMP (formerly Cooperative Space Measurements) Project													
(U) - Spacecraft integration and test	X												
(U) - Launch			X										
(U) - Data collection				X	X	X	X	X					
(U) Advanced Combustor Chamber Concepts Project													
(U) - Material/fabrication sample tests	X	X											
(U) - Combustor cooled panel design and fabrication			X										
(U) - Cooled panel tests				X	X								
(U) - Combustor chamber design and fabrication						X	X	X					
(U) - Combustor chamber test								X	X				
(U) Integrated Tactical Aircraft Control Program													
(U) - System design	X	X	X	X	X	X	X						
(U) - System mechanization						X	X	X					
(U) - Simulation and evaluation								X	X	X	X	X	
(U) - Joint demonstration preparation											X	X	
(U) Distributed Mission Training Technologies Project													
(U) - Project Agreement signed	X												
(U) - Program start		X	X										
(U) - CF-18 software design			X	X	X	X							
(U) - Software rehost			X	X	X	X	X	X					
(U) - Instructor operator control station						X	X	X					
(U) - CF-18 modernization enhancements					X	X	X	X	X	X	X	X	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NATO			
(U) F. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) - Visual display system/DMT control station									X	X	X	X	
(U) Anthropometric Accommodation in Crew Systems Project													
(U) - Conduct anthropometric survey	X	X	X	X	X	X	X	X					
(U) - Assess subjects in actual cockpits	X	X											
(U) - Assess one model in the US and one model in The Netherlands	X	X	X	X									
(U) - Augmented reality assessments					X	X	X	X	X	X			
(U) - 3-D data reduction			X	X	X	X	X	X	X	X			
(U) - Compare live subject, computer model, and augmented reality result						X	X	X	X	X			
(U) - Comparison of data from The Netherlands with the US			X	X	X	X	X	X	X	X			
(U) - Complete final project documentation							X	X	X	X			
(U) Space Radiation Sensors Project													
(U) - Project Agreement signed								X					
(U) - Calibration Review								X	X	X			
(U) - Preliminary data base										X	X	X	
(U) - Verification of calibration													X
(U) Air C3I Project													
(U) - Project Agreement signed								X					
(U) - Scope work effort to achieve shared data environment									X				
(U) - Develop translator extensions									X				
(U) - US/NATO battle lab verification and development test										X			
(U) - Examine US/NATO Concept of operations in coalition environment												X	
(U) Coalition C3 Demonstration Environment Project													
(U) - Project Agreement signed	X												
(U) - Testbed setup & evaluation	X	X	X										
(U) - Network management integration	X	X	X	X	X	X	X	X					
(U) - C3I application and integration demonstrations					X				X	X			
(U) ATLANTIC PAW Project													

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603790F NATO Cooperative R&D					NATO			
(U) F. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	- Supplement signed			X									
(U)	- Joint compliance testing				X								
(U)	- Tool characterization				X	X	X						
(U)	- Interpreter characterization/design						X	X	X	X			
(U)	- Allied waveform coding									X			
(U)	- Interop demo										X		
(U)	Scintillation Impacts on Communication and Navigation Systems Project												
(U)	- Project Agreement signed		X										
(U)	- Implement real-time data collection at existing sites			X	X								
(U)	- Deploy scintillation monitors			X	X	X							
(U)	- Campaign/complete data collection start					X							
(U)	- Correlate and calibrate data sets						X						
(U)	- Characterize local disturbance climatology								X				
(U)	- Develop regional forecast algorithms										X		
(U)	- Report regional scintillation & tailored products for C3I sys											X	
(U)	Refraction & Propagation Modeling for Microwave Systems Project												
(U)	- Test parabolic propagation model with real refraction data							X	X	X	X		
(U)	- Aircraft measurements: validate extreme refraction cases							X	X	X	X		
(U)	- Aircraft data reduction and analyses							X	X	X	X		
(U)	- Validation propagation model for extreme cases									X	X	X	
(U)	- Demonstrate model use with AWACS operation										X	X	
(U)	- Final report											X	
(U)	Engine Component Life Extension Project												
(U)	- Project Agreement signed							X					
(U)	- Engine Rotor Life Extension (ERLE) technical/economic studies							X					
(U)	- Advanced life prediction methodologies for ERLE								X	X	X	X	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001						
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D					PROJECT NATO						
(U) F. Schedule Profile Continued																
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>						
	1	2	3	4	1	2	3	4	1	2	3	4				
(U)	- Advanced nondestructive inspection/evaluation technology										X	X				
(U)	- Advance manufacture concepts/technical development for ERLE												X			
(U)	Flight Test Demo of Mini Munitions Release from Internal Weapons Bay															
(U)	- Project Agreement signed										X					
(U)	- Logistics preparations										X					
(U)	- Weapons hardware integration											X				
(U)	- Operational hardware installation											X				
(U)	- Flight test												X			
(U)	- Final reporting											X				
(U)	Distributed Mission Training & Virtual Air Environment Technologies															
(U)	- Project Agreement signed											X				
(U)	- Program start											X				
(U)	- F-18 software conversion											X	X	X		
(U)	- Software rehost											X	X	X		
(U)	CAESAR Project															
(U)	- Project Agreement signed											X				
(U)	- Technical and operational coordination										X	X	X	X	X	X
(U)	- Survey and assessments, Concepts of Operations										X	X	X	X	X	X
(U)	- Tactics, techniques, procedures, measures of effectiveness/ perf											X	X	X	X	X
(U)	- Identify info for CAESAR ground picture											X	X	X	X	X
(U)	- Architecture development											X	X	X	X	X
(U)	Advanced Hybrid Propulsion Technologies															
(U)	- Hybrid ignition study												X			
(U)	- Testing													X		
(U)	- Data analysis and final report													X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE	
		June 2001	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT	
04 - Demonstration and Validation	0603790F NATO Cooperative R&D	NATO	
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>			
		<u>FY 2000</u>	<u>FY 2001</u>
			<u>FY 2002</u>
(U) Advanced Combustor Chamber Concepts Program (ACCCP)		312	0
(U) Advanced Hybrid Propulsion Technologies (AHPT)		0	0
(U) Aging Aircraft Life Prediction/Extension		400	0
(U) Air Command, Control, Communications, and Intelligence (C3I) Capabilities		0	350
(U) Airworthiness of Aging Aircraft		250	0
(U) Anthropometric Accommodation in Crew Systems		300	300
(U) Advanced Transmission Language and Allocation of New Technology for International Communication and Proliferation of Allied Waveforms (ATLANTIC PAW)		100	550
(U) Challenging Mini-Satellite Payload (CHAMP) (formerly Cooperative Space Measurements)		75	0
(U) Coalition Aerial Surveillance And Reconnaissance (CAESAR)		0	500
(U) Coalition Command, Control, and Communications (C3) Demo Environment (CC3DE)		250	500
(U) Cooperative Research and Development (R&D) Efforts in Imaging Spectrometer Development		0	100
(U) Distributed Mission Training (DMT) and Virtual Air Environment (VAE) Technologies		0	0
(U) Distributed Mission Training (DMT) Technologies		450	500
(U) Effects of Ionization on Hydrocarbon-Air Combustion		0	400
(U) Effects of the Ionosphere on Command, Control, Communications, and Intelligence (C3I) Systems		213	200
(U) Engine Component Life Extension		0	354
(U) Flight Test Demonstration of Miniature Munitions Release from Internal Bay		216	100
(U) Free Piston Shock Tunnel (FPST)/ High Enthalpy Goettingen (HEG) Project		100	0
(U) Future Multiband Multiwaveform Modular Tactical Radio (FM3TR)		150	0
(U) High Altitude Endurance Unmanned Aerial Vehicle (HAE UAV) (Global Hawk) Cooperative Analysis, Development, and Operational Demonstration		0	570
(U) Integrated Tactical Aircraft Control (ITAC) Program		500	400
(U) Refraction and Propagation Modeling for Microwave Systems		0	200
(U) Scintillation Impacts on Communication and Navigation Systems		375	300
(U) Space Radiation Sensors		0	34
(U) Strike Warrior		0	0
(U) Structural Integrity of Aging Aircraft		350	0
Project NATO			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603790F NATO Cooperative R&D			PROJECT NATO		
(U) <u>A. Project Cost Breakdown (\$ in Thousands) Continued</u>										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Three Dimensional Multilayer Microwave Integrated Circuit (3DIC)				50		0			0
(U)	Management and administrative support and travel						100			100
(U)	Total				4,091		5,458			5,616
Complete information regarding the use of NATO Cooperative R&D funds is not available for all proposed agreements, since some are still being negotiated or were recently signed. In addition, information on the use of future funding for continuing agreements is not available in all instances because the funds are used as needed to supplement a project office's related 6.1 through 6.5 RDT&E appropriations.										
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Lockheed Martin Colorado Springs, CO	CPAF	Oct 95			0	0	350	0	Continuing	TBD
Sytronics Dayton, OH	CPFF	Apr 98			600	85	300	0	Continuing	TBD
Boston College Boston, MA	CFSR	Mar 97			155	0	0	0	Continuing	TBD
RADEX Bedford, MA	CPFF	Mar 97			920	40	50	0	Continuing	TBD
Pacific Sierra Research Santa Monica, CA	CPFF	Mar 97			60	0	0	0	Continuing	TBD
CPI Fairfax, VA	CPFF	Mar 97			180	0	0	0	Continuing	TBD
U of Massachusetts Lowell, MA	CR	Apr 97			170	125	100	0	Continuing	TBD
KEO Consultants Brookline, MA	CPFF	Mar 97			220	0	0	0	Continuing	TBD
NW Research Associates Bellevue, WA	CPFF	Apr 97			110	75	50	0	Continuing	TBD
Project NATO					Page 20 of 23 Pages			Exhibit R-3 (PE 0603790F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE		
						June 2001		
BUDGET ACTIVITY			PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation			0603790F NATO Cooperative R&D				NATO	
(U) Performing Organizations Continued:								
<u>Product Development Organizations</u>								
Visdyne Inc.	CPFF	Sep 00	400	0	0	0	Continuing	TBD
Innovative Scientific Solutions Inc.	CPFF	Sep 00	0	0	400	0	Continuing	TBD
U of Texas Austin, TX	CPFF	May 97	25	0	0	0	Continuing	TBD
Applied Research Lab, U of Texas Austin, TX	CPFF	May 97	105	0	0	0	Continuing	TBD
Lockheed Martin Orlando, FL	CPFF	Sep 96	913	0	0	0	Continuing	TBD
Raytheon TI Systems	CPFF	Dec 97	683	0	0	0	Continuing	TBD
Boeing Seattle, WA	CPFF	Sep 98	260	400	300	600	Continuing	TBD
UES, Inc Dayton, OH	CPFF	Oct 97	100	0	0	0	Continuing	TBD
NOAA/ATDD Oak Ridge, TN	MIPR	Oct 97	0	0	0	0	Continuing	TBD
Pratt & Whitney West Palm Beach, FL	CPFF	Jun 98	1,000	312	0	0	Continuing	TBD
AFRL WPAFB, OH	TBD	TBD	0	0	388	816	Continuing	TBD
Boeing Long Beach, CA	CPFF	Jul 98	265	0	0	0	Continuing	TBD
Boeing Seattle, WA	CPFF	Mar 98	200	0	0	0	Continuing	TBD
Lockheed Marietta, GA	CPFF	Oct 98	325	200	0	0	Continuing	TBD
Northrop Hawthorne, CA	CPFF	Oct 98	50	0	0	0	Continuing	TBD
Selectech Dayton, OH	CPFF	Feb 98	50	300	0	0	Continuing	TBD
Boeing St Louis, MO	CPFF	Mar 00	0	250	0	0	Continuing	TBD
University of South Carolina	CPFF	Apr 00	0	250	0	0	Continuing	TBD
Boeing St Louis, MO	CPIF	Apr 99	0	0	0	0	Continuing	TBD
Thiokol Corp Elkton, MD	CPFF	Nov 97	0	0	0	0	Continuing	TBD
Raytheon Mesa, AZ	CPFF	Jul 97	0	250	500	1,000	Continuing	TBD
CPI Annandale, VA	CPFF	TBD	0	0	200	0	Continuing	TBD
U of Colorado Boulder, CO	CPFF	TBD	0	0	100	0	Continuing	TBD
Boston College Newton, MA	CPFF	TBD	0	0	50	0	Continuing	TBD
Radex	CPFF	Feb 01	0	0	135	0	Continuing	TBD

Project NATO

Page 21 of 23 Pages

Exhibit R-3 (PE 0603790F)

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603790F NATO Cooperative R&D				NATO		
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
Applied Physics Lab Laurel, MD	MIPR	May 00		0	0	0	0	Continuing	TBD	
Boston College Boston, MA	CPFF	TBD		0	0	40	0	Continuing	TBD	
Radex Bedford, MA	CPFF	TBD		0	25	0	0	Continuing	TBD	
U of Mass Lowell, MA	CR	TBD		0	0	45	0	Continuing	TBD	
Scion Associates Seattle, WA	CPFF	TBD		0	0	65	0	Continuing	TBD	
SRI, Int'l Menlo Park, CA	CPFF	TBD		0	0	40	200	Continuing	TBD	
AFRL Rome, NY	TBD	TBD		1,250	500	1,050	0	Continuing	TBD	
AFRL Hanscom, MA	TBD	TBD		0	25	300	100	Continuing	TBD	
Navigation Warfare						170	250	Continuing	TBD	
Global Hawk						400	0	Continuing	TBD	
0										
<u>Support and Management Organizations</u>										
AFRL Hanscom, MA				135	688	75	1,850	Continuing	TBD	
AFRL WPAFB, OH				5	75	25	220	Continuing	TBD	
45th Space Wing Patrick AFB, FL	AF 185	May 95		5	0	0	0	Continuing	TBD	
AFRL Eglin AFB, FL				50	216	0	0	Continuing	TBD	
Pender Technology, TN	CR	Oct 97		90	25	45	0	Continuing	TBD	
Veridian Dayton, OH				145	75	75	75	Continuing	TBD	
<u>Test and Evaluation Organizations</u>										
Air Force Development Test Center, FL	PO	Jan 98		54	0	0	0	Continuing	TBD	
Sverdrup Technology, Inc TN	CPAF	Sep 95		1,443	175	205	205	Continuing	TBD	
Naval Air Warfare CenterPoint Mugu, CA	MIPR	Jan 99		40	0	0	0	Continuing	TBD	
Aeronautical Systems Center WPAFB				0	0	0	300	Continuing	TBD	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603790F NATO Cooperative R&D				PROJECT NATO	
(U) Performing Organizations Continued:									
<u>Test and Evaluation Organizations</u>									
Fora Laser System	PO	Nov 97		100	0	0	0	Continuing	TBD
Arnold Engineering Development Center, TN	TBD	TBD		0	0	0	0	Continuing	TBD
(U) Government Furnished Property:									
	<u>Contract Method/Type</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
Fora laser system	PO	Nov 97	Jan 98	147	0	0		0	147
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>									
Subtotal Product Development				8,041	2,837	5,033	2,966	TBD	TBD
Subtotal Support and Management				430	1,079	220	2,145	TBD	TBD
Subtotal Test and Evaluation				1,784	175	205	505	TBD	TBD
Total Project				10,255	4,091	5,458	5,616	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603800F Joint Strike Fighter					PROJECT 2025		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2025	Joint Strike Fighter (JSF)	249,088	341,167	0	0	0	0	0	0	0	1,907,352
	Quantity of RDT&E Articles	4	0	0	0	0	0	0	0	0	0
<p>'FY03-FY07 USAF BUDGET NUMBERS DO NOT REFLECT THE DOD STRATEGIC REVIEW RESULTS.'</p> <p>(U) <u>A. Mission Description</u> The Joint Strike Fighter (JSF) Program will develop and field an affordable, highly common family of next generation strike fighter aircraft for the USN, USMC, USAF and allies. The current phase emphasizes facilitating the evolution of fully validated and affordable joint operational requirements, and demonstrating cost leveraging technologies and concepts to lower risk prior to entering Engineering and Manufacturing Demonstration (EMD) in Fall 2001. This is a joint program with no executive service. Navy and Air Force each provide approximately equal shares of annual funding for the program. The United Kingdom (UK) is a collaborative partner in this phase of the program and several other countries also participate.</p> <p>PROGRAM TOTAL FUNDING BREAKOUT (FY2000, 2001) REFLECTS NAVY, AIR FORCE, AND INTERNATIONAL FUNDING.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$393,548 Continued Concept Demonstration Phase (CDP) efforts by Boeing, Lockheed Martin and Pratt & Whitney including ground and flight demonstrations, areas of technology maturation, and concept refinement for a tri-service family of aircraft.</p> <p>(U) \$34,711 Continued development of a second engine (GE F-120 engine) for competition in production.</p> <p>(U) \$56,462 Completed technology maturation demonstrations and continued assessments in the areas of airframe, flight systems, manufacturing and producibility, propulsion and mission systems. Continued systems engineering support for the CDP in the areas of system test, air vehicle analysis and integration, advanced cost estimating, survivability, integrated flight and propulsion control, and carrier suitability.</p> <p>(U) \$9,002 Continued technology maturation demonstrations and assessments in the area autonomic logistics and completed prognostics and health management technology maturation demonstrations and assessments.</p> <p>(U) \$11,377 Continued modeling and simulation activities to support strike warfare mission area analysis and requirements analysis efforts including Cost and Operational Performance Trades to facilitate the Services' joint requirements definition. Completed the Operational Requirements Document (ORD). Continued modeling and simulation support testing, training, and refinement of concept of operations for the weapons system (simulation based acquisition).</p> <p>(U) \$16,909 Continued mission support, including program office functions.</p>											
Project 2025		Page 1 of 11 Pages					Exhibit R-2 (PE 0603800F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603800F Joint Strike Fighter	PROJECT 2025
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
(U) \$522,009	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$368,713	Complete CDP efforts by Boeing, Lockheed Martin and Pratt & Whitney including ground and flight demonstrations, areas of technology maturation and concept refinement for a tri-service family of aircraft. Request proposals from contractors for their designs and EMD programs.	
(U) \$172,000	Complete transition risk reduction activities under bridge contracts with Boeing, Lockheed Martin and Pratt & Whitney, and fund Pratt & Whitney long-lead requirements to protect EMD schedule.	
(U) \$45,620	Complete the General Electric (GE) JSF F-120 Engine Phase IIIA effort (Common Core Design Trade Studies) in this Program Element. (GE JSF F-120 Engine Development Program will continue in JSF EMD, Program Elements 0604800N and 0604800F.)	
(U) \$50,866	Complete assessments/systems engineering support for the CDP in the areas of airframe, flight systems, manufacturing and producibility, mission systems, propulsion, autonomic logistics, system test, air vehicle analysis and integration, advanced cost estimating, survivability, integrated flight and propulsion control, and carrier suitability. Complete analyses required for Milestone II. Conduct source selection evaluation to support down-select for final design.	
(U) \$26,117	Complete modeling and simulation activities to support Milestone II analyses. Complete modeling and simulation support testing, training, and refinement of concept of operations for the weapons system (simulation based acquisition).	
(U) \$21,515	Complete mission support, including program office functions.	
(U) \$684,831	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$0	Not Applicable	
(U) \$0	Total	
(U) <u>B. Budget Activity Justification</u>		
This program is funded under Program Definition and Risk Reduction (PDRR), formerly Demonstration and Validation (DEM/VAL), because it integrates hardware for test related to specific ship or aircraft applications.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE					
							June 2001					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT					
04 - Demonstration and Validation				0603800F Joint Strike Fighter			2025					
(U) C. Program Change Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>				<u>Total Cost</u>				
(U)	Previous President's Budget (FY 2001 PBR)	248,109	129,538	0				1,693,458				
(U)	Appropriated Value	249,088	241,349									
(U)	Adjustments to Appropriated Value											
	a. Congressional/General Reductions											
	b. Small Business Innovative Research											
	c. Omnibus or Other Above Threshold Reprogram				100,346							
	d. Below Threshold Reprogram											
	e. Rescissions				-528							
(U)	Adjustments to Budget Years Since FY 2001 PBR						213,894					
(U)	Current Budget Submit/FY 2002 PBR	249,088	341,167	0				1,907,352				
(U)	<u>Significant Program Changes:</u>											
	Funding: The FY2001 \$211.629 Million net increase reflects a Congressional increase (\$111.811M) for a projected schedule delay, a Congressional reprogramming increase (\$100.346 Million) from PE 0604800F, and a Congressional reduction (-\$.528M).											
	Schedule: Experienced delays in contractor flight test schedules, extending completion of this phase until Fall 2001.											
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	RDT&E 0603800N	238,420	341,164	0	0	0	0	0	0	0	1,950,617	
(U)	RDT&E 0603800E	0	0	0	0	0	0	0	0	0	118,006	
(U)	United Kingdom	26,101	800							0	201,091	
(U)	Multi-Lateral	5,100	1,700							0	32,100	
(U)	Canada	3,300	0							0	10,600	
(U)	Italy	0	0							0	10,000	
(U)	RDT&E 0604800F	0	0	769,511	1,747,738	1,953,957	21,124,460	2,115,394	1,508,255	Continuing	TBD	
(U)	RDT&E 0604800N	0	0	767,238							Continuing	TBD
(U)	United Kingdom (EMD)	0	0	95,000							Continuing	TBD
Project 2025												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603800F Joint Strike Fighter	PROJECT 2025
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(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Related Procurement Funding:										
(U) Procurement 0207142F - JSF Squadrons	0	0	0						Continuing	TBD
(U) Procurement 0204146N - JSF Squadrons	0	0	0						Continuing	TBD

'FY03-FY07 USAF BUDGET NUMBERS DO NOT REFLECT THE DOD STRATEGIC REVIEW RESULTS.'

'FY03-FY07 NAVY AND UK BUDGET NUMBERS ARE PENDING DOD STRATEGIC REVIEW RESULTS.'

Note 1: Multi-Lateral countries include Netherlands, Norway and Denmark.

Note 2: RDT&E 0604800F/N (EMD) depicted funding excludes anticipated other international funding, not yet formalized.

(U) **E. Acquisition Strategy**

Program activities in the CDP phase center around three distinct objectives that provide a sound foundation for the start of Engineering and Manufacturing Development (EMD) in Fall 2001:

- (1) facilitating the Services' development of fully validated, affordable operational requirements;
- (2) lowering risk by investing in and demonstrating key leveraging technologies that lower the cost of development, production and ownership; and
- (3) demonstrating operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process, and key to achieving JSF affordability goals. To an unprecedented degree, the JSF program is using cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced the iterations of 'Services' Joint Interim Requirements Document in 1995, 1997, 1998 and culminated in the approved JSF Operational Requirements Document (ORD) in FY2000.

A sizable technology maturation effort was conducted to reduce risk and life cycle cost (LCC) through technology maturation and demonstration. The primary emphasis was on technologies identified as high payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and life cycle cost impact to component, subsystem and the total system.

In November 1996, contracts were competitively awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001																																																					
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603800F Joint Strike Fighter					PROJECT 2025																																																					
<p>(U) <u>E. Acquisition Strategy Continued</u> and are flying concept demonstrator aircraft, conduct concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin are demonstrating commonality and modularity, Short Take Off/ Vertical Land (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney is providing propulsion hardware and engineering support. The JSF concept demonstration approach has several benefits:</p> <ul style="list-style-type: none"> (1) Maintains the competitive environment prior to EMD and provides for two different STOVL approaches and two different aerodynamic configurations. (2) Demonstrates the viability of a multi-service family of variants with high commonality and modularity between CTOL, CV and STOVL variants. (3) Provides affordable and low risk technology transition to the JSF EMD phase. <p>The JSF F-120 Engine Program, with General Electric, continues the development of a second, interchangeable, engine for competition in production.</p> <p>Downselect to a single prime weapon system contractor for EMD and Milestone II is planned in Fall 2001.</p>																																																															
<p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border: none;"> <thead> <tr> <th style="width: 10%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th style="width: 10%;"></th> <th style="width: 5%;">1</th> <th style="width: 5%;">2</th> <th style="width: 5%;">3</th> <th style="width: 5%;">4</th> <th style="width: 5%;">1</th> <th style="width: 5%;">2</th> <th style="width: 5%;">3</th> <th style="width: 5%;">4</th> <th style="width: 5%;">1</th> <th style="width: 5%;">2</th> <th style="width: 5%;">3</th> <th style="width: 5%;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Operational Requirements Document (ORD) Approved: Mar 00</td> <td></td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) Complete CDP: Q4FY2001</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>													<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Operational Requirements Document (ORD) Approved: Mar 00		*											(U) Complete CDP: Q4FY2001								X				
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Project 2025				Page 5 of 11 Pages				Exhibit R-2 (PE 0603800F)																																																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603800F Joint Strike Fighter			PROJECT 2025		
(U) A. Project Cost Breakdown (\$ in Thousands)					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U) PROJECT COST CATEGORIES:										
(U) WEAPON SYSTEMS CONCEPT DEMONSTRATIONS (including flying demonstrators and supporting propulsion efforts)					397,524	368,713	0			
(U) TRANSITION RISK REDUCTION ACTIVITIES					0	172,000	0			
(U) F-120 ENGINE PROGRAM					34,710	45,620	0			
(U) TECHNOLOGY MATURATION AREAS:										
(U) Airframe					1,460	1,164	0			
(U) Flight Systems					5,682	2,269	0			
(U) Manufacturing and Producibility					563	242	0			
(U) Propulsion					8,116	3,040	0			
(U) Mission Systems					9,244	5,356	0			
(U) Systems Engineering Support					26,117	27,731	0			
(U) Autonomic Logistics					9,002	8,815	0			
(U) Modeling, Simulation, Analysis, Threat, COPT and Core Support					10,977	25,717	0			
(U) Mission Support					6,527	6,691	0			
(U) SUPPORT (CS)					12,087	17,473	0			
(U) TEST AND EVALUATION: (included above)										
(U) MANAGEMENT: N/A										
(U) Total					522,009	684,831	0			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025		
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
Strike Warfare Concept										
Studies:										
Miscellaneous	Various		11,467	11,467	11,467	0	0	0	0	11,467
Technology Maturation										
Concept Exploration Phase:										
Filed Activities	Various		3,432	3,432	3,432	0	0	0	0	3,432
Strike Warfare Systems										
Design Development:										
Boeing, Seattle WA	C/CPFF		32,770	32,770	32,770	0	0	0	0	32,770
McAir, St Louis MO	C/CPFF		23,708	23,708	23,708	0	0	0	0	23,708
Northrop, Pico Rivera CA	C/CPFF		21,358	21,358	21,358	0	0	0	0	21,358
Lockheed Martin, Fort	C/CPFF		28,311	28,311	28,311	0	0	0	0	28,311
Worth TX										
Miscellaneous	Various		1,121	1,121	1,121	0	0	0	0	1,121
Field Activities	Various		8,322	8,322	8,322	0	0	0	0	8,322
ASTOVL:										
Lockheed Martin	SS/CPFF		16,416	16,416	16,416	0	0	0	0	16,416
Boeing	SS/CPFF		11,200	11,200	11,200	0	0	0	0	11,200
Miscellaneous	Various		15,539	15,539	15,539	0	0	0	0	15,539
Core Team Support										
Field Activities	Various		2,522	2,522	2,522	0	0	0	0	2,522
Weapon System Concept										
Demonstrations (Note 1):										
Boeing	C/CPFF	Oct	796,944	796,944	560,983	157,046	79,169	0	0	797,198
		98/99/00								
Lockheed Martin	C/CPFF	Oct	944,764	944,764	629,545	153,459	161,850	0	0	944,854
		98/99/00								
Pratt & Whitney,East	SS/CPFF	Nov	954,076	954,076	750,071	87,019	127,694	0	0	964,784
Project 2025										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603800F Joint Strike Fighter					PROJECT 2025	
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
Hartford CT		98/99/00								
Transition Risk Reduction										
Activities:										
Boeing	SS/FFP	Apr 01					43,333			43,333
Lockheed Martin	SS/FFP	Apr 01					43,333			43,333
Pratt & Whitney,East	SS/CPFF	Apr 01					85,334			85,334
Hartford CT										
F-120 Engine Program:										
General Electric,	SS/CPFF		7,000	7,000	7,000	0	0	0	0	7,000
Cincinnati OH										
General Electric,	SS/CPFF	Nov 98/Oct	183,728	183,728	103,397	34,710	45,620	0	0	183,727
Cincinnati OH		99/Oct 00								
TECHNOLOGY										
MATURATION AREAS:										
AIRFRAME:										
McAir	SS/CPFF		19,240	19,240	19,240	0	0	0	0	19,240
Miscellaneous	Various	Various	2,168	2,168	2,079	56	23	0	0	2,158
Field Activities	Various	Nov	8,252	8,252	5,373	1,404	1,141	0	0	7,918
		98/99/00								
FLIGHT SYSTEMS:										
Lockheed Martin	C/CPFF	Nov 98/99	52,201	52,201	51,322	879	0	0	0	52,201
McAir	C/CPFF	Nov 98/99	65,944	65,944	64,821	1,123	0	0	0	65,944
Miscellaneous	Various	Various	9,860	9,860	9,740	401	178	0	0	10,319
Field Activities	Variuos	Nov	24,628	24,628	17,703	3,279	2,091	0	0	23,073
		98/99/00								
MANUFACTURING AND										
PRODUCIBILITY:										
Hughes, Los Angeles	C/CPFF		5,065	5,065	5,065	0	0	0	0	5,065

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025		
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
CA										
Lockheed Martin	C/CPFF	Nov 98/99	9,600	9,600	9,600	0	0	0	0	9,600
General Res.	C/CPFF		1,945	1,945	1,945	0	0	0	0	1,945
Corp.,Huntsville AL										
Scaled Composites	C/CPFF		2,000	2,000	2,000	0	0	0	0	2,000
Lockheed Martin	C/CPFF		700	700	700	0	0	0	0	700
Miscellaneous	Various	Various	1,679	1,679	1,544	75	0	0	0	1,619
Field Activities	Various	Nov 98/99/00	5,619	5,619	4,660	488	242	0	0	5,390
PROPULSION:										
Pratt & Whitney	C/CPFF		5,448	5,448	5,448	0	0	0	0	5,448
General Electric	SS/CPFF		5,681	5,681	5,681	0	0	0	0	5,681
Pratt & Whitney	SS/CPFF		30,000	30,000	30,000	0	0	0	0	30,000
General Electric	SS/CPFF		3,000	3,000	3,000	0	0	0	0	3,000
Pratt & Whitney	SS/CPFF	Jan 99	26,777	26,777	26,777	0	0	0	0	26,777
Pratt & Whitney	SS/CPFF		3,640	3,640	3,640	0	0	0	0	3,640
Pratt & Whitney	SS/TBD	Dec 98	8,200	8,200	8,200	0	0	0	0	8,200
NASA Contracts	Various	Jul 99	2,800	2,800	2,800	0	0	0	0	2,800
Miscellaneous	Various	Various	14,845	14,845	14,699	96	50	0	0	14,845
Field Activities	Various	Nov 98/99/00	51,011	51,011	39,873	8,020	2,990	0	0	50,883
MISSION SYSTEMS:										
TI, Plano TX	C/CPFF		2,464	2,464	2,464	0	0	0	0	2,464
Lockheed	SS/CPFF		6,856	6,856	6,856	0	0	0	0	6,856
McAir	SS/CPFF		6,524	6,524	6,524	0	0	0	0	6,524
Raytheon	C/CPFF	Nov 98/99	45,173	45,173	45,173	0	0	0	0	45,173
Northrop Grumman	C/CPFF	Nov 98/99	41,903	41,903	41,903	0	0	0	0	41,903
Boeing	C/CPFF		1,575	1,575	1,575	0	0	0	0	1,575

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603800F Joint Strike Fighter				2025		
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
Lockheed Martin	C/CPFF		1,517	1,517	1,517	0	0	0	0	1,517
Hughes	C/CPFF		3,681	3,681	3,681	0	0	0	0	3,681
Classified	Classified	Nov 98	3,000	3,000	3,000	0	0	0	0	3,000
Miscellaneous	Various	Various	24,988	24,988	21,564	3,292	221	0	0	25,077
Field Activities	Various	Nov 98/99/00	42,432	42,432	27,635	5,952	5,135	0	0	38,722
SYSTEMS										
ENGINEERING SUPPORT:										
Miscellaneous	Various	Various	34,112	34,112	20,566	4,076	5,626	0	0	30,268
Field Activities	Various	Nov 98/99/00	133,968	133,968	92,154	22,041	22,105	0	0	136,300
AUTONOMIC LOGISTICS (formerly Prognostics and Health Management / Supportability and Training:										
Pratt & Whitney	C/CPFF		10,100	10,100	10,100	0	0	0	0	10,100
General Electric	C/CPFF	Jan 99	1,500	1,500	1,500	0	0	0	0	1,500
Project 3 (Classified)	C/CPFF		8,576	8,576	8,576	0	0	0	0	8,576
Project 4 (Classified)	C/CPFF		5,549	5,549	5,549	0	0	0	0	5,549
Miscellaneous	Various	Various	11,563	11,563	4,552	5,032	2,571	0	0	12,155
Field Activity	Various	Nov 98/99/00	19,552	19,552	11,707	3,970	6,244	0	0	21,921
MODELING, SIMULATION, ANALYSIS, THREAT, COPT, AND CORE SUPPORT:										
Miscellaneous	Various	Various	51,746	51,746	42,752	4,985	12,526	0	0	60,263
Field Activities	Various	Nov	38,317	38,317	26,882	5,992	13,191	0	0	46,065

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
BUDGET ACTIVITY										June 2001	
04 - Demonstration and Validation										PROJECT 2025	
PE NUMBER AND TITLE											
0603800F Joint Strike Fighter											
(U) Performing Organizations Continued:											
<u>Product Development Organizations</u>											
98/99/00											
MISSION SUPPORT:											
Institute for Defense	Grant		2,500	2,500	2,500	0	0	0	0	2,500	
Analysis											
Field Activities	Various	Various	35,182	35,182	26,342	6,527	6,691	0	0	39,560	
Note 1:											
- Includes government managed equipment.											
- Consistent with Boeing and Lockheed Martin replans, annual funding increments reflect budgeted basic CDP efforts as well as areas of technology maturation.											
- Pratt and Whitney Total Value of Contract reflects award fees totaling \$35.1M, FY1998 and prior, and basic CDP efforts.											
<u>Support and Management Organizations</u>											
ANSER, Arlington VA	SS/CPFF	Jan99/00/01	33,701	33,701	24,261	4,720	1,144	0	0	30,125	
ANTEON/SVERDRUP,	C/CPFF	Apr 01					2,618			2,618	
Arlington VA											
Stanley Assoc. Arlington VA	SS/CPFF	Apr 01					4,945			4,945	
AEGIS	C/CPFF	Apr 01					1,058			1,058	
Arlington VA											
Miscellaneous	Various	Various	34,123	34,123	20,521	7,367	7,708	0	0	35,596	
<u>Test and Evaluation Organizations</u>											
Included Above											
						<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
						<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						2,978,144	509,922	667,358	0	0	4,155,424
Subtotal Product Development						44,782	12,087	17,473	0	0	74,342
Subtotal Support and Management											
Subtotal Test and Evaluation											
Total Project						3,022,926	522,009	684,831	0	0	4,229,766

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)					PROJECT 4778		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4778	Integrated Broadcast Service	23,924	15,643	20,529	20,135	10,011	10,255	10,436	10,661	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	1	1	2	0	0	Continuing	TBD
FY03-FY07 budget numbers do not reflect the DoD strategic review results.											
(U) A. Mission Description											
<p>The Integrated Broadcast Service (IBS) provides warfighters with critical and highly perishable intelligence in a single, correlated picture via a near-real-time, integrated dissemination architecture. IBS consolidates existing intelligence broadcast systems into a common-format and theater-tailored architecture. The IBS design incorporates new functionality in broadcast and information management and a new message format. It fields Information Management Elements (IME) to geographic Commanders-in-Chief (CINC); built to requirements as set forth in the Joint Operational Requirements Document. Functional characteristics include:</p> <ul style="list-style-type: none"> - Accept data from dissimilar, geographically-dispersed, multi-INT sources. - Transmit to end users equipped with Joint Tactical Terminal (JTT) or terminals which incorporate the Common IBS Modules (CIBS-M). - Disseminate intelligence focused on user generated and CINC validated priorities. - Disseminate intelligence over communications paths available to the end user. <p>The IBS Executive Agent and Joint Program Office fully restructured the acquisition strategy; a result of terminating the initial development effort due to a significant schedule slip. Within the restructure process, IBS users clarified and prioritized IBS requirements that drove acquisition changes. The resulting strategy incorporates a Program Definition/Risk Reduction phase, followed by a spiral development Engineering, Manufacturing, Development phase. The Milestone Decision Authority (MDA) approved the new strategy in January 2000. The Program Office awarded three Program Definition/Risk Reduction (PD/RR) contracts in June 2000 and the Engineering, Manufacturing, and Development (EMD) Phase II contract in May 2001.</p>											
(U) FY 2000 (\$ in Thousands)											
(U)	\$3,089	Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution									
(U)	\$4,989	Systems Engineering, including development of architectures, System of Systems management through the Joint Broadcast Configuration Control Board (JBCCB) and Broadcast Operations Integration Group (BOIG), and Risk Reduction Studies using Simulation Based Acquisition (SBA) tools.									
(U)	\$12,500	Design and build Information Management Elements (IMEs). This task area was the major emphasis of the program restructure, resulting in a									
Project 4778		Page 1 of 6 Pages					Exhibit R-2 (PE 0603850F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603850F Integrated Broadcast Service (DEM/VAL)	4778
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	two phase development of the IMEs and associated IBS dissemination architecture. Phase I (FY 2000) concentrates on the design and development of the IBS architecture.	
(U) \$3,346	Common Message Format (CMF) Development.	
(U) \$23,924	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$3,000	Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution	
(U) \$2,000	Systems Engineering, including maintenance of architectures, System of Systems management through the JBCCB and BOIG, and Risk Reduction Studies using SBA tools.	
(U) \$7,507	Continue the design and build of Information Management Elements (Phase II)	
(U) \$3,136	Common Message Format (CMF) Development.	
(U) \$15,643	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$3,090	Maintain a Program Management Office, including program supervision, finance and acquisition strategy execution	
(U) \$2,040	Systems Engineering, including maintenance of architectures, System of Systems management through the JBCCB and BOIG, and Risk Reduction Studies using SBA tools.	
(U) \$12,099	Continue the design and build of Information Management Elements (Phase II)	
(U) \$2,300	Common Message Format (CMF) Development.	
(U) \$1,000	Test & Evaluation	
(U) \$20,529	Total	
(U) <u>B. Budget Activity Justification</u>		
This program is in budget activity 4 because it includes demonstrating and validating the use of technologies to create an operational integrated broadcast service.		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
04 - Demonstration and Validation				0603850F Integrated Broadcast Service (DEM/VAL)			4778				
(U) C. Program Change Summary (\$ in Thousands)											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)			24,198	24,488	17,146		TBD			
(U)	Appropriated Value			24,446	15,788			TBD			
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions			-52							
	b. Small Business Innovative Research										
	c. Omnibus or Other Above Threshold Reprogram										
	d. Below Threshold Reprogram			-374							
	e. Rescissions			-96	-145						
(U)	Adjustments to Budget Years Since FY 2001 PBR					3,383					
(U)	Current Budget Submit/FY 2002 PBR			23,924	15,643	20,529		TBD			
(U)	Significant Program Changes:										
	- USAF added \$47.4M (RDT&E) for FY 1999-2003 for a partial consolidation of IBS legacy systems' funding.										
	- USAF added an additional \$68.1M (RDT&E) in the FY 2000-2005 budget to complete the consolidation of IBS legacy funds under a single PE.										
	- Congress reduced the IBS RDT&E budget by \$8.7M in FY 2001.										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	OPAF/PE0208019F	1,000									
(U)	O&M/PE0305179F*		15,144	32,700							
	*Navy O&M transferred to AF										
(U) E. Acquisition Strategy											
IBS used a Program Definition/Risk Reduction (PDRR) phase, followed by a spiral development Engineering, Manufacturing, Development (EMD) phase. Award of the EMD contract was based on full and open competition. The EMD effort will use spiral development.											
(U) F. Schedule Profile											
				<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT			
04 - Demonstration and Validation					0603850F Integrated Broadcast Service (DEM/VAL)					4778			
(U) F. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) Program Restructure Approved		*											
(U) Phase I (PD/RR)													
(U) - Quick Pass, Pre-ASP, ASP	*												
(U) - Release RFP		*											
(U) - Phase I Multiple Awards			*										
(U) - Phase I Completion					*								
(U) Phase II (EMD)													
(U) - Milestone ""B"" Decision Brief									*				
(U) - Release RFP					*								
(U) - Phase II Award									*				
(U) - Critical Design Review												X	
(U) - Interim Capability Demonstration												X	
(U) Common Message Format													
(U) - Message Development Begin					*								
(U) - Interim Development Complete												X	
* - Denotes completed event													
X - Denotes planned event													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603850F Integrated Broadcast Service (DEM/VAL)			4778		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Program Management					3,089		3,000		3,090
(U)	System Engineering					4,989		2,000		2,040
(U)	Information Management Element (Phase I & Phase II)					12,500		7,507		12,099
(U)	Common Message Format Development					3,346		3,136		2,300
(U)	Test & Evaluation					0		0		1,000
(U)	Total					23,924		15,643		20,529
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Lockheed Martin (Phase I)	FFP	June 00	2,000	2,000	0	2,000	0	0		2,000
BTG, Inc. (Phase I)	FFP	June 00	2,000	2,000	0	2,000	0	0		2,000
TRW, Inc. (Phase I)	FFP	June 00	2,000	2,000	0	2,000	0	0		2,000
BTG, Inc. (Phase II)	CPAF	May 01	TBD	TBD	0	6,500	7,507	12,159	Continuing	TBD
Raytheon E-Systems-CMF	FFP	Nov 00	4,850	4,850	0	2,060	1,850	940		4,850
SAIC/BTG (CMF)	FFP	Con't	TBD	TBD	0	1,286	1,286	1,300	Continuing	TBD
<u>Support and Management Organizations</u>										
MITRE/ITSP	CPFF	Oct 98	TBD	TBD	0	8,078	5,000	5,130	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
JITC/46th OSS	Project Order	Con't	TBD	TBD	0	0	0	1,000	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603850F Integrated Broadcast Service (DEM/VAL)			PROJECT 4778		
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Method/Type</u>	<u>or Funding</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
TBD				0	0	0		Continuing	TBD
<u>Support and Management Property</u>									
TBD				0	0	0		Continuing	TBD
<u>Test and Evaluation Property</u>									
TBD				0	0	0		Continuing	TBD
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	15,846	10,643	14,399	TBD	TBD
Subtotal Support and Management				0	8,078	5,000	5,130	TBD	TBD
Subtotal Test and Evaluation				0	0	0	1,000	TBD	TBD
Total Project				0	23,924	15,643	20,529	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	44,097	50,975	44,484	47,952	48,959	49,975	54,369	56,959	Continuing	TBD
1020 ICBM Guidance Applications	9,216	16,017	18,296	20,367	20,793	21,225	22,141	23,712	Continuing	TBD
1021 ICBM Propulsion Applications	168	176	1,676	1,656	1,691	1,725	4,635	4,743	Continuing	TBD
1022 ICBM Reentry Vehicle Applications	14,306	20,252	21,659	23,109	23,595	24,085	24,510	25,357	Continuing	TBD
1023 Rocket System Launch Program	18,185	12,121	31	31	32	33	34	35	Continuing	TBD
1024 ICBM Command & Control (C2) Applications	168	176	441	436	446	455	474	483	Continuing	TBD
4209 Long Range Planning (LRP)	2,054	2,233	2,381	2,353	2,402	2,452	2,575	2,629	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>FY00 and FY01: Congress appropriated, above and beyond that requested in the respective year President's Budget Submission, an additional \$19,200K in FY00 and \$12,200K in FY01 in Rocket System Launch Program (BPAC 641023). See Exhibit R-2, Para C. Program Change Summary, and Exhibit R-2A, BPAC 641023, Rocket System Launch Program -- both in this Program Element -- for details.</p> <p>FY02: The following new tasks are being identified in this President's Budget Submission.</p> <ul style="list-style-type: none"> - ICBM Propulsion Applications (BPAC 1021) - task to demonstrate new propulsion system technologies. - ICBM Command & Control (C2) Applications (BPAC 1024) - task to perform evaluations/analyses of alternative command and control networks. <p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p>										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY

04 - Demonstration and Validation

PE NUMBER AND TITLE

0603851F ICBM - DEM/VAL

(U) **A. Mission Description**

Efforts identify methods to reduce life cycle costs, improve nuclear safety and surety, support international arms control agreements and disengagement strategies, and ensure continued ICBM viability. Program includes demonstration and validation projects for ICBM guidance options, support for reentry vehicles beyond original design life, assessment of current and future ICBM propulsion systems, and development of enhancements to ensure command and control capabilities.

(U) **B. Budget Activity Justification**

This program is in Budget Activity 04 - Demonstration and Validation because the projects are demonstrating the general military utility and/or cost reduction potential of advanced technologies.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	47,075	39,246	44,231	TBD
(U) Appropriated Value	47,828	51,446		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-373	-360		
b. Small Business Innovative Research	-1,738			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-1,433			
e. Rescissions	-187	-111		
(U) Adjustments to Budget Years Since FY 2001 PBR			253	
(U) Current Budget Submit/FY 2002 PBR	44,097	50,975	44,484	TBD

(U) **Significant Program Changes:**

FY00:

- Includes a congressional add of \$19,200K in the Rocket System Launch Program Project (BPAC 641023) to demonstrate quick launch capabilities.

FY01:

- Includes a congressional add of \$12,200K in the Rocket System Launch Program Project (BPAC 641023) to demonstrate a quick reaction launch capability.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1020	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1020 ICBM Guidance Applications	9,216	16,017	18,296	20,367	20,793	21,225	22,141	23,712	Continuing	TBD
FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.										
(U) <u>A. Mission Description</u> The ICBM Guidance Applications Project is required to meet on-going needs in applied strategic guidance systems and their subcomponents. This project ensures the continued readiness of our strategic deterrent forces in response to the Nuclear Posture Review, recommendations of the USSTRATCOM Strategic Advisory Group, CINCSTRATCOM guidance, and the Defense Science Board Task Force on Nuclear Deterrence. Efforts within this project are focused on current and future requirements, disengagement strategies, reduced life cycle costs, and increased nuclear surety and safety. These activities leverage the efforts of the Science and Technology community. The efforts are coordinated with the Navy guidance applications efforts so as to avoid duplication while realizing maximum return on the invested dollars. The key elements of the Guidance Applications Project are the continued preservation of the minimum critical technical skills and capabilities needed to respond to unexpected problems in the Minuteman guidance system, the assessment and mitigation of any degradation of aging hardware, and the development and analysis of future strategic guidance hardware. These unique guidance efforts will demonstrate utility and cost savings potential.										
(U) <u>FY 2000 (\$ in Thousands)</u>										
(U) \$2,614	Continued development of advanced inertial measurement unit (AIMU) concepts emphasizing mechanical, electrical, cooling, data interfaces, and in-flight updates. Performed tests and design changes for meeting performance, cost, and compatibility goals.									
(U) \$2,626	Continued development and testing of radiation hardened application-specific integrated circuits (ASICs) and a radiation hardened high throughput microprocessor for strategic weapon system requirements.									
(U) \$3,976	Continued development and testing of thrust axis accelerometer prototype to improve performance, design brass board electronics, and address radiation hardness environment impacts. Conducted initial design of microelectrical mechanical (MEMS) instruments and electronics for common strategic guidance system.									
(U) \$9,216	Total									
(U) <u>FY 2001 (\$ in Thousands)</u>										
(U) \$2,337	Complete development and test of AIMU concepts.									
(U) \$2,731	Continue follow-on development and demonstration of concepts for future common strategic guidance system technology.									
(U) \$3,090	Continue development of radiation hard ASICs and high throughput microprocessors for strategic applications.									
(U) \$4,858	Continue the design, test, and integration of thrust axis accelerometer.									
Project 1020			Page 3 of 29 Pages				Exhibit R-2A (PE 0603851F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001																																									
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1020																																									
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(U) \$3,001 Continue design and development of micro-electrical mechanical (MEMS) instruments and electronics for common guidance system.</p> <p>(U) \$16,017 Total</p> <p>The following net transactions are not reflected in the FY01 Program Total: BTR = -\$1,113K and SBIR = -\$54K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$5,533 Continue development and prototype of concepts for future common strategic guidance system technology.</p> <p>(U) \$3,176 Continue development of radiation hard ASICs and high throughput microprocessor.</p> <p>(U) \$7,762 Continue instrument development and test of alternate accelerometer technology for thrust axis accelerometer.</p> <p>(U) \$1,825 Continue design and prototype development of micro-electrical mechanical (MEMS) instruments and electronics for common guidance system.</p> <p>(U) \$18,296 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>FY01:</p> <ul style="list-style-type: none"> - The following net transactions are not reflected in the FY01 Program Total: BTR= -\$1,113K and SBIR = -\$54K. - Reprogramming to meet higher AF priorities. - The development of the MEMS silicon accelerometer will be delayed by one year. <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) None.</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u></p> <p>Accomplish studies, analyses, and limited engineering/pre-prototype hardware development. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) None.												<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																		
(U) None.																																											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																																								
Project 1020	Page 4 of 29 Pages	Exhibit R-2A (PE 0603851F)																																									

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 1020			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Advanced IMU Concepts					2,614		2,337			
(U)	Common System Concepts							2,731		5,533	
(U)	Rad Hardness					2,626		3,090		3,176	
(U)	Instruments					3,976		4,858		7,762	
(U)	Micro Mechanical Electronics							3,001		1,825	
(U)	Total					9,216		16,017		18,296	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	11,496	9,156	15,957	18,236	Continuing	TBD
<u>Support and Management Organizations</u>											
	Other Engineering Support	Various	As Req'd	Continuing	Continuing	3,335	60	60	60	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
(U) <u>Government Furnished Property:</u>											
	<u>Contract</u>	<u>Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>							
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	None										
<u>Support and Management Property</u>											
	None										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation			PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL		PROJECT 1020	
(U) Government Furnished Property Continued:						
<u>Test and Evaluation Property</u>						
None						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	11,496	9,156	15,957	18,236	TBD	TBD
Subtotal Support and Management	3,335	60	60	60	TBD	TBD
Subtotal Test and Evaluation						
Total Project	14,831	9,216	16,017	18,296	TBD	TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1021	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
1021 ICBM Propulsion Applications	168	176	1,676	1,656	1,691	1,725	4,635	4,743	Continuing	TBD	
<p>FY02: New task to demonstrate new propulsion system technologies initiated with this President's Budget Submission.</p> <p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> (U) The ICBM Propulsion Application Program sustains the ICBM strategic propulsion capability through projects exploring improvements and/or alternatives to current ICBM propulsion systems, conducting studies assessing application of new technology to meet future ICBM propulsion system requirements, assessing opportunities for applying common materials and technology between the ICBM and SLBM propulsion systems, and demonstrating application of technology developed by the Science and Technology community to the ICBM strategic systems.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$168 Conducted studies and assessment of technological developments in support of ICBM propulsion systems. (U) \$168 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$176 Continue studies and assessment of technological developments in support of ICBM propulsion systems. (U) \$176 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$357 Complete studies and assessments of technological developments in support of ICBM propulsion systems. (U) \$1,319 Begin design and evaluation through static-fire test demonstrations of AFRL technology in support of ICBM propulsion systems. (U) \$1,676 Total</p> <p>(U) <u>B. Project Change Summary</u> No significant changes.</p>											
Project 1021			Page 8 of 29 Pages				Exhibit R-2A (PE 0603851F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1021			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) None											
(U) D. Acquisition Strategy											
Studies, analyses, and motor ground test firings will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U)	Conduct studies/assessments of tech development (start FY02, ongoing)			*							
(U)	--Begin/Complete Annual Studies			*			*	*	X	X	X
(U)	Design and evaluation of AFRL technology (start FY02, ongoing)								X		
(U)	--Annual Progress Report										X
	* - Completed Event										
	X - Planned Event										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
BUDGET ACTIVITY										PROJECT	
04 - Demonstration and Validation										1021	
PE NUMBER AND TITLE											
0603851F ICBM - DEM/VAL											
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U)	Contract Engineering Support					168	176			1,676	
(U)	Total					168	176			1,676	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	332	133	169	1,666	Continuing	TBD
	AFRL-Edwards	PO	Feb	30	30	0	30	0	0	0	30
<u>Support and Management Organizations</u>											
	Prog Management	Various	As Req'd	Continuing	Continuing	34	5	7	10	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	None										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	None										
<u>Support and Management Property</u>											
	None										
<u>Test and Evaluation Property</u>											
	None										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation			0603851F ICBM - DEM/VAL		1021	
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	332	163	169	1,666	TBD	TBD
Subtotal Support and Management	34	5	7	10	TBD	TBD
Subtotal Test and Evaluation						
Total Project	366	168	176	1,676	TBD	TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1022		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1022	ICBM Reentry Vehicle Applications	14,306	20,252	21,659	23,109	23,595	24,085	24,510	25,357	Continuing	TBD
FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.											
(U) A. Mission Description ICBM Reentry Vehicle (RV) Applications efforts are required to support the deployed ICBM force with emphases on implementing arms control treaties/initiatives directing the downloading of the Minuteman force to a single RV configuration, equipping the Minuteman force with the safest and most reliable RVs, and exploring options for satisfying future requirements. These efforts will support RVs beyond their original design life by addressing problems with operational reentry systems, meeting real on-going needs, and ensuring the availability of long-lead components/materials. This project will develop methods to better predict aging phenomena and identify life cycle cost reduction methods. A key element of the RV Applications efforts is the continued preservation of the minimum critical technical skill and capabilities needed to respond to unexpected problems, aging phenomena and future requirements. RV work conducted under this program will leverage the Science & Technology community investments and coordinate with Navy RV applications program to eliminate duplication and realize synergistic cost savings. Testing of program products is done on a space available basis on Minuteman and Peacekeeper FDE flights.											
(U) FY 2000 (\$ in Thousands)											
(U)	\$5,436	Continued evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.									
(U)	\$3,463	Continued design, development, and prototype testing of selected fuze assessment/measurement methodologies.									
(U)	\$750	Continued identifying and ground testing potential replacement options for critical RV components.									
(U)	\$933	Continued to evaluate improved accuracy measurement and methodology.									
(U)	\$1,746	Evaluated advanced common RV designs, applications, and technologies.									
(U)	\$1,978	Developed and assessed RV Test & Evaluation methodologies and subsystems.									
(U)	\$14,306	Total									
(U) FY 2001 (\$ in Thousands)											
(U)	\$5,400	Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.									
(U)	\$3,976	Continue design, development, and prototype testing of selected fuze assessment/measurement methodologies.									
(U)	\$1,523	Continue identifying and ground testing potential replacement options for critical RV components.									
(U)	\$1,205	Continue evaluation of improved accuracy measurement and methodology.									
(U)	\$1,853	Evaluate alternate flight test experiment options.									
Project 1022				Page 12 of 29 Pages				Exhibit R-2A (PE 0603851F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL	PROJECT 1022
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(U) **A. Mission Description Continued**

(U) FY 2001 (\$ in Thousands) Continued

- (U) \$3,772 Continue evaluation of advanced common RV designs, applications, and technologies.
- (U) \$2,523 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.
- (U) \$20,252 Total

The following net transactions are not reflected in the FY01 Program Total: BTR = -\$1,359K and SBIR = -\$69K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.

(U) FY 2002 (\$ in Thousands)

- (U) \$5,469 Continue evaluation of RV material subsystems, materials aging, and material replacements by performing ground and flight tests.
- (U) \$4,026 Continue design, development, and prototype flight testing of selected fuze assessment/measurement.
- (U) \$1,594 Continue identifying and ground testing potential replacement options for critical RV components.
- (U) \$1,056 Continue evaluation of improved accuracy measurement and methodology.
- (U) \$3,229 Continue evaluation of alternate flight test experiment options.
- (U) \$3,790 Continue evaluation of advanced common RV Designs, applications, and technologies.
- (U) \$2,495 Continue development and assessment of RV Test & Evaluation methodologies and subsystems.
- (U) \$21,659 Total

(U) **B. Project Change Summary**

FY01:

- The following net transactions are not reflected in the FY01 Program Total: BTR = -\$1,359 and SBIR = -\$69K.
- Reprogrammings to meet higher AF priorities.
- The development/evaluation of advanced thermal protection materials/systems will be delayed at least a year.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							

(U) None

(U) **D. Acquisition Strategy**

Studies, analyses, limited engineering, and pre-prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor unless other strategies are deemed more appropriate.

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1022			
(U) E. Schedule Profile													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	MATERIALS REPLACEMENT & AGING EVALUATION												
(U)	--Design, Develop & Test Selected Technologies (Began FY96, Ongoing)												
(U)		*		*		*		X		X		X	
(U)	FUZE ASSESSMENT												
(U)	Design, Develop & Test Measurement Tools (Began FY96, Ongoing)												
(U)		*		*		*		X		X		X	
(U)	CRITICAL COMPONENTS												
(U)	--Design, Develop & Test selected Technologies (Began FY96, Ongoing)												
(U)		*		*		*		X		X		X	
(U)	RV TEST & EVALUATION METHODOLOGIES												
(U)		*											
(U)	--Design, Develop & Test Methods/Subsystems (Began FY00, Ongoing)												
(U)				*		*		X		X		X	
(U)	ACCURACY ASSESSMENT METHODOLOGY												
(U)	--Evaluate Accuracy Measurement Techniques (Began 1QFY96, Ongoing)												
(U)		*		*		*		X		X		X	
(U)	ADVANCED COMMON RV DESIGNS, APPLICATIONS & TECHNOLOGIES												
(U)	--Identify & Evaluate Options (Ongoing)												
(U)		*		*		*		X		X		X	
(U)	ALTERNATE FLIGHT TEST OPTIONS												
(U)					*								
(U)	--Identify, Develop & Test Options (Begins FY01, Ongoing)												
(U)								X		X		X	
(U)	--Periodic Status Reports/Reviews												
(U)								X			X	X	
(U)	FLIGHT TESTS												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY
04 - Demonstration and Validation

PE NUMBER AND TITLE
0603851F ICBM - DEM/VAL

PROJECT
1022

(U) **E. Schedule Profile Continued**

<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
1	2	3	4	1	2	3	4	1	2	3	4

* - Completed Event
X - Planned Event

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 1022		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Materials & Prediction Methodologies					5,436		5,400		5,469
(U)	Fuze Assessment					3,463		3,976		4,026
(U)	Identify/ground test critical components					750		1,523		1,594
(U)	Accuracy Assessment Measures Methodology					933		1,205		1,056
(U)	Evaluate Flight Test Experiments							1,853		3,229
(U)	Evaluate Advanced Common RV					1,746		3,772		3,790
(U)	Develop & Assess RV T&E Methods					1,978		2,523		2,495
(U)	Total					14,306		20,252		21,659
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	8,183	13,733	18,702	20,149	Continuing	TBD
<u>Support and Management Organizations</u>										
Other Engineering & Management Support	Various	Ongoing	Continuing	Continuing	1,245	101	100	60	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Wright Lab	MIPR	Annual	Continuing	Continuing	861	174	450	450	Continuing	TBD
AEDC	PO	Annual	Continuing	Continuing	972	230	750	750	Continuing	TBD
Vandenberg AFB	PO	As Req'd	Continuing	Continuing	0	68	250	250	Continuing	TBD

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
BUDGET ACTIVITY							June 2001	
04 - Demonstration and Validation				PE NUMBER AND TITLE			PROJECT	
				0603851F ICBM - DEM/VAL			1022	
(U) Government Furnished Property:								
	<u>Contract</u>	<u>Award or</u>						
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Description</u>	<u>Vehicle</u>							<u>Program</u>
<u>Product Development Property</u>								
None								
<u>Support and Management Property</u>								
None								
<u>Test and Evaluation Property</u>								
None								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
								<u>Program</u>
Subtotal Product Development				8,183	13,733	18,702	20,149	TBD
Subtotal Support and Management				1,245	101	100	60	TBD
Subtotal Test and Evaluation				1,833	472	1,450	1,450	TBD
Total Project				11,261	14,306	20,252	21,659	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1023	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
1023 Rocket System Launch Program	18,185	12,121	31	31	32	33	34	35	Continuing	TBD	
<p>FY00: Congress appropriated an additional \$19,200K to demonstrate quick launch capabilities. FY01: Congress appropriated an additional \$12,200K to demonstrate quick reaction launch capability. FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> This task supports studies/analyses on hardware for cost effective use of excess missile assets.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$32 Continued on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$18,153 Prepared for two quick reaction launch capability demonstrations; one in support of the Northern Edge Joint Training Exercise and the other as part of the Advanced Solid Axial Stage (ASAS) development effort. (U) \$18,185 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$34 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$10,087 Provide target launch vehicle in support of Northern Edge exercise and demonstrate common strategic missile technology. (U) \$2,000 Integrate Global Positioning System (GPS) range safety certification with Northern Edge target launch vehicle. (U) \$12,121 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$31 Continue on-going study/analysis for the adoption of low cost front-end systems for use on deactivated missile assets. (U) \$31 Total</p> <p>(U) <u>B. Project Change Summary</u> FY00: The \$19,200K congressional add was used to demonstrate quick launch capabilities consistent with congressional language. FY01: The \$12,200K congressional add is being used for quick reaction launch capability demonstration(s) consistent with congressional language.</p>											
Project 1023			Page 18 of 29 Pages				Exhibit R-2A (PE 0603851F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) Other APPN											
(U) None											
(U) Related RDT&E, AF PE 0605860F, RSLP (Space) (BA-06, R-097)											
(U) D. Acquisition Strategy											
Studies and analyses will be performed primarily in-house augmented with contractor support as required. Special projects that might be funded under this project that require the development and/or evaluation of hardware along with the associated employment concepts will be awarded to qualified industry sources following open competition. Type contract used (e.g., CPIF, FPIF, etc) will be that deemed most advantageous to the government.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U)	(U) Start/Complete Annual Studies/Analysis			*			*	*	X	X	X
(U)	(U) Quick Reaction Launch Capability Demo (Start)				*						
(U)	-- (U) Northern Edge launch						*				
(U)	-- (U) ASAS launch (See note)								X		
Note: Hardware for ASAS flight tests developed/procured in PE 0605860F, RSLP (Space)											
* - Completed Event											
X - Planned Event											
Project 1023			Page 19 of 29 Pages				Exhibit R-2A (PE 0603851F)				

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 1023		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Studies/Analyses					32		34		31
(U)	Quick Reaction Launch Capability Demonstrations									
(U)	--Northern Edge Exercise Quick Reaction Launch					8,667		12,087		
(U)	--ASAS Quick Reaction Launch					9,486				
(U)	Total					18,185		12,121		31
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
AF Research Lab	MIPR	Mar 97/Jun 00	2,742	2,742	1,744	150	848	0	0	2,742
Florida National Guard	MIPR	Jul 97/Jan 00	5,600	5,600	2,500	3,100	0	0	0	5,600
Various	Various	As Req'd	N/A	5,368	1,995	1,109	2,264	0	0	5,368
Space Vector	FFP	Jun 00	883	883	0	883	0	0	0	883
Draper Labs	CPFF	Apr 00	700	700	0	700	0	0	0	700
DTIC	MIPR	Mar 00	2,125	2,125	0	1,875	250	0	0	2,125
Orbital Sciences Corp	FFP	Feb 00/Jan 01	10,050	10,050	0	4,750	5,300	0	0	10,050
Kodiak Launch Complex	SS/FFP	Aug 00	1,405	1,405	0	505	900	0	0	1,405
OO-ALC/LM (ICBM SPO)	MIPR	Mar 00	752	752	0	641	111	0	0	752
<u>Support and Management Organizations</u>										
TRW	SS/T&M	As Req'd	N/A	N/A	4,077	2,912	1,114	0	Continuing	TBD
Various	Various	As Req'd	Continuing	Continuing	548	260	34	31	Continuing	TBD

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1023		
(U) Performing Organizations Continued:										
<u>Test and Evaluation Organizations</u>										
Pt Magu Missile Range	MIPR	Feb 00	2,600	2,600	0	1,300	1,300	0	0	2,600
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					6,239	13,713	9,673	0	0	29,625
Subtotal Support and Management					4,625	3,172	1,148	31	TBD	TBD
Subtotal Test and Evaluation					0	1,300	1,300	0	0	2,600
Total Project					10,864	18,185	12,121	31	TBD	TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 1024	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1024 ICBM Command & Control (C2) Applications	168	176	441	436	446	455	474	483	Continuing	TBD
<p>FY02: Begin new task to perform evaluations/analyses of alternative command and control network.</p> <p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> To maintain the ICBM weapon systems as a credible deterrent to a hostile attack requires an extremely high confidence in the command and control (C2) systems providing connectivity to the National Command Authority (NCA). To ensure the ICBMs can be tasked in all manners of hostile environments requires assured, survivable, and secure channels of communication to the missile Launch Control Centers (LCCs). While assured connectivity is mandated for ICBMs, ways must be found to make the C2 systems cost effective. Continuing studies are needed to identify existing and future technologies as well as concepts that exploit state-of-the-art communications and information transfer techniques that will guarantee the required C2 support to both the current ICBM mission and those ICBM systems and missions that will evolve in the 21st century. This program accomplishes studies, demonstrations, and tests to ensure future ICBM C2 architectures, networks, and systems evolve in a planned, orderly, and cost effective manner while meeting the stringent requirements of nuclear command and control.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$168 Studied alternatives and future concepts for a command and control (C2) system architecture supporting ballistic missile applications. (U) \$168 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$176 Continue to develop and refine alternatives and concepts for a command and control (C2) system architecture supporting strategic missile applications. (U) \$176 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$198 Continue to develop and refine alternatives and concepts for a command and control (C2) system architecture supporting strategic missile applications. (U) \$243 Begin demonstrations, testing and evaluation of alternative network architectures, applications, and technologies. (U) \$441 Total</p>										
Project 1024			Page 22 of 29 Pages				Exhibit R-2A (PE 0603851F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																														
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL				PROJECT 1024																																																																																																													
<p>(U) <u>B. Project Change Summary</u> No significant changes.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>Cost to</u></th> <th><u>Total Cost</u></th> </tr> <tr> <th></th> <th><u>Actual</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies and analyses, and limited engineering and pre-prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contract unless other strategies are deemed more appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="3"><u>FY 2000</u></th> <th colspan="3"><u>FY 2001</u></th> <th colspan="3"><u>FY 2002</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) Future Concepts Study for Command & Control (Ongoing)</td> <td>*</td> <td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) --Periodic Progress Reports/Reviews</td> <td></td><td></td><td></td><td></td> <td>*</td> <td>*</td> <td></td><td></td> <td>X</td> <td>X</td> <td></td><td>X</td> </tr> <tr> <td>(U) Begin demonstrations, test, and evaluations of alternate networks</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td> <td>X</td> <td></td><td></td> </tr> <tr> <td>(U) --Periodic Progress Reports/Reviews</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td>X</td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) None												<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Future Concepts Study for Command & Control (Ongoing)	*												(U) --Periodic Progress Reports/Reviews					*	*			X	X		X	(U) Begin demonstrations, test, and evaluations of alternate networks										X			(U) --Periodic Progress Reports/Reviews												X						
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																											
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Project 1024			Page 23 of 29 Pages				Exhibit R-2A (PE 0603851F)																																																																																																														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 1024			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Contract Engineering Support					168		176		441	
(U)	Total					168		176		441	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Dec 97	Continuing	Continuing	1,628	164	172	436	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Various	Various	As Req'd	N/A	N/A	14	4	4	5	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	None										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
	<u>Test and Evaluation Property</u>										
	None										

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation			0603851F ICBM - DEM/VAL		1024	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Program</u>
Subtotal Product Development		1,628	164	172	436	TBD
Subtotal Support and Management		14	4	4	5	TBD
Subtotal Test and Evaluation						
Total Project		1,642	168	176	441	TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL					PROJECT 4209		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4209	Long Range Planning (LRP)	2,054	2,233	2,381	2,353	2,402	2,452	2,575	2,629	Continuing	TBD
<p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> The Long Range Planning (LRP) task analyzes ICBM systems to identify potential modifications required to meet user objectives relative to long term sustainment, technology insertion, employment, and force structure. The studies focus on system supportability, operability, reliability, and maintainability. Options/concepts generated by these studies are evaluated for feasibility, system impacts, and cost.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$505 Continued support of Long Range Planning tasks, development of the Systems Options Report, and updated of the Logistics Program Management Plan and the ICBM Master Plan. (U) \$817 Continued to perform feasibility and life extension studies. (U) \$732 Continued to perform technology insertion studies in support of changing ICBM environments. (U) \$2,054 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$505 Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan. (U) \$945 Continue to perform feasibility and life extension studies. (U) \$783 Continue to perform technology insertion studies in support of changing ICBM environments. (U) \$2,233 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$495 Continue support of Long Range Planning tasks, development of the Systems Options Report, and update of the Logistics Program Management Plan and the ICBM Master Plan. (U) \$1,069 Continue to perform feasibility and life extension studies. (U) \$817 Continue to perform technology insertion studies in support of changing ICBM environments. (U) \$2,381 Total</p>											
Project 4209		Page 26 of 29 Pages					Exhibit R-2A (PE 0603851F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001																																																																																																
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 4209																																																																																																
<p>(U) <u>B. Project Change Summary</u> No significant changes.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies and analyses will be accomplished. Efforts will be conducted using contracting strategies deemed most appropriate.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Contract Award for Annual Studies/Analyses</td> <td style="text-align: center;">*</td> <td></td><td></td><td></td> <td></td> <td></td><td></td><td></td> <td style="text-align: center;">X</td> <td></td><td></td><td></td> </tr> <tr> <td>(U) Program Reviews</td> <td></td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td style="text-align: center;">*</td> <td></td> <td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) Reports Received</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td style="text-align: center;">X</td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) None												<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Contract Award for Annual Studies/Analyses	*								X				(U) Program Reviews		*	*			*	*			X	X		(U) Reports Received					*				X			X						
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																														
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																																																															
(U) None																																																																																																								
	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>																																																																																																	
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Project 4209			Page 27 of 29 Pages				Exhibit R-2A (PE 0603851F)																																																																																																	

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603851F ICBM - DEM/VAL			PROJECT 4209			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>	
(U)	Long Range Planning Tasks				505		505			495	
(U)	Feasibility Studies				817		945			1,069	
(U)	Technology Insertion Studies				732		783			817	
(U)	Total				2,054		2,233			2,381	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	TRW (Prime)	C/CPAF	Dec 97	N/A	N/A	894	1,533	1,995	468	Continuing	TBD
	Alliant	SS/CPAF	Dec 99	N/A	N/A		40				40
	McCallie	SS/C/FFP	Nov 99	N/A	N/A		128	99			227
	TBD	TBD	Annually	N/A	N/A				1,759	Continuing	TBD
<u>Support and Management Organizations</u>											
	Various	Various	Ongoing	N/A	N/A	1,855	353	139	154	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	None										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	None										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE June 2001		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation		0603851F ICBM - DEM/VAL			4209	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						<u>Program</u>
Subtotal Product Development		894	1,701	2,094	2,227	TBD
Subtotal Support and Management		1,855	353	139	154	TBD
Subtotal Test and Evaluation						
Total Project		2,749	2,054	2,233	2,381	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	45,570	121,661	96,670	26,670	48,623	28,077	0	0	0	561,206
2679 Global Broadcast Service (GBS) Phases 1 and 2	40,660	27,071	0	0	0	0	0	0	0	260,997
4811 Wideband Gapfiller	4,910	83,196	83,351	2,284	2,104	2,239	0	0	0	178,753
4870 Command & Control System Consolidated (CCSC)	0	11,394	13,319	24,386	46,519	25,838	0	0	0	121,456
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

FY 2002-2007 GBS project 642679 funding was transferred to PE 0603840F.

(U) **A. Mission Description**
 Provide the DoD with high data rate (Wideband) MILSATCOM services in accordance with the Joint Requirements Oversight Council (JROC), Joint Space Management Board approved MILSATCOM Architecture (Aug 96), and the MILSATCOM Capstone Requirements Document (CRD) approved by the JROC in Oct 97.

Global Broadcast Service (GBS) will provide efficient, high data rate broadcast capability between many distributed information sources and warfighters who receive the broadcast directly on small, inexpensive user terminals. GBS Phase 1 was started in 1996 as a Continental United States (CONUS)-based testbed for requirements definition and operational concept refinement using a leased commercial space segment (satellite). Phase 2 provides near worldwide, limited capability at military frequencies hosted on three Navy Ultra High Frequency Follow-On (UFO) satellites augmented with leased service over CONUS.

The Wideband Gapfiller System (WGS) satellites will augment the DoD's Interim Wideband System, which includes the Defense Satellite Communications System (DSCS) X-band and Global Broadcast Service (GBS) Ka-band capabilities. In addition, WGS will provide a new two-way Ka-band service. The first WGS launch is scheduled for FY04, and the remaining two are scheduled for FY05.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY

04 - Demonstration and Validation

PE NUMBER AND TITLE

0603854F Wideband MILSATCOM (Space)

(U) **A. Mission Description Continued**

The Command and Control System-Consolidated (CCS-C) provides an integrated commercial-based command and control system for all the MILSATCOM satellite constellations.

(U) **B. Budget Activity Justification**

(U) Funding is in Budget Activity 4, Demonstration and Validation to support:

- WGS: making maximum use of commercial technology and practices by modifying commercial satellites to support unique military requirements, and
- CCS-C: competitive demonstration phase

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	50,277	134,029	128,814	2,859,821
(U) Appropriated Value	50,344	121,029		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-67	-847		
b. Small Business Innovative Research	-338			
c. Omnibus or Other Above Threshold Reprogram	-141			
d. Below Threshold Reprogram	-4,031	-267		
e. Rescissions	-197	1,746		
(U) Adjustments to Budget Years Since FY 2001 PBR			-32,144	
(U) Current Budget Submit/FY 2002 PBR	45,570	121,661	96,670	561,206

(U) **Significant Program Changes:**

(U) FY02-07 funding in the GBS BPAC (642679) was moved to the new GBS PE (0603840F).

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001																			
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					PROJECT 2679																			
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																		
2679 Global Broadcast Service (GBS) Phases 1 and 2	40,660	27,071	0	0	0	0	0	0	0	260,997																		
<p>NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>Beginning with FY02, this project will be documented in its own Program Element - 0603840F.</p> <p>(U) <u>A. Mission Description</u> GBS will provide DoD with efficient, high data rate connectivity to many distributed information sources and warfighters who will receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD) validated by the Joint Requirements Oversight Council in Apr 1995. Broadcast data includes digitized imagery, logistics and weather data, maps, operational orders, and video. GBS Phase 1 was a single channel leased through FY98 for initial testing and concept exploration. Phase 1 capability was extended under Phase 2 due to delay in deploying capability. GBS Phase 2 includes the ground infrastructure for broadcast management and uplink and receive equipment which work with: (1) space packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, and (2) leased commercial Ku-band packages for CONUS coverage. GBS Phase 2 schedule was re-baselined by OIPT in Jul 00 (awaiting ADM).</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <tr> <td style="width: 15%;">(U) \$19,315</td> <td>Continued System Development and Test</td> </tr> <tr> <td>(U) \$3,555</td> <td>Continued Initial Comm Connectivity/Interface, CONUS Transponder Lease</td> </tr> <tr> <td>(U) \$7,345</td> <td>Continued Phase 2 Government System Integration</td> </tr> <tr> <td>(U) \$1,500</td> <td>Continued Program Support</td> </tr> <tr> <td>(U) \$1,673</td> <td>Continued Field Survey and Integration</td> </tr> <tr> <td>(U) \$3,100</td> <td>Continued Navy Terminal Support</td> </tr> <tr> <td>(U) \$983</td> <td>Provided System Test & Evaluation Support</td> </tr> <tr> <td>(U) \$3,189</td> <td>Provided Joint Terminals Engineering Office (JTEO) Support</td> </tr> <tr> <td>(U) \$40,660</td> <td>Total</td> </tr> </table>											(U) \$19,315	Continued System Development and Test	(U) \$3,555	Continued Initial Comm Connectivity/Interface, CONUS Transponder Lease	(U) \$7,345	Continued Phase 2 Government System Integration	(U) \$1,500	Continued Program Support	(U) \$1,673	Continued Field Survey and Integration	(U) \$3,100	Continued Navy Terminal Support	(U) \$983	Provided System Test & Evaluation Support	(U) \$3,189	Provided Joint Terminals Engineering Office (JTEO) Support	(U) \$40,660	Total
(U) \$19,315	Continued System Development and Test																											
(U) \$3,555	Continued Initial Comm Connectivity/Interface, CONUS Transponder Lease																											
(U) \$7,345	Continued Phase 2 Government System Integration																											
(U) \$1,500	Continued Program Support																											
(U) \$1,673	Continued Field Survey and Integration																											
(U) \$3,100	Continued Navy Terminal Support																											
(U) \$983	Provided System Test & Evaluation Support																											
(U) \$3,189	Provided Joint Terminals Engineering Office (JTEO) Support																											
(U) \$40,660	Total																											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001																		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																		
04 - Demonstration and Validation	0603854F Wideband MILSATCOM (Space)	2679																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table> <tr> <td>(U) \$17,279</td> <td>Continue System Development and Test</td> </tr> <tr> <td>(U) \$3,589</td> <td>Continue Phase 2 Government System Integration</td> </tr> <tr> <td>(U) \$1,394</td> <td>Continue Program Support</td> </tr> <tr> <td>(U) \$1,210</td> <td>Continue Field Survey and Integration</td> </tr> <tr> <td>(U) \$2,300</td> <td>Continue Navy Terminal Support</td> </tr> <tr> <td>(U) \$1,299</td> <td>Provide System Test and Evaluation Support</td> </tr> <tr> <td>(U) \$27,071</td> <td>Total</td> </tr> </table> <p>(U) The following net transaction is not reflected in the FY01 program total: BTR=+\$1695K, and SBIR=-\$295K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table> <tr> <td>(U) \$0</td> <td>Funded in PE 63840F</td> </tr> <tr> <td>(U) \$0</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Project Change Summary</u></p> <p>(U) A new Program Element, PE 0603840F, has been established for this project effective with FY02. See PE63840F for FY02 and beyond.</p> <p>(U) FY01 System Development and Test includes OSD Direction to support the transition from Joint Broadcast Service to the GBS Phase 2 capability.</p> <p>(U) FY01 Navy Terminal Support reduced \$3M in response to poor execution rates.</p> <p>(U) The GBS Program has experienced several programmatic problems that resulted in a schedule breach from the Acquisition Program Baseline (APB) ground segment schedule outlined in the Dec 00 Selected Acquisition Report (SAR). The OIPT approved a new program schedule baseline with incremental IOCs in Oct 01, and in May 01 the Joint Requirements Oversight Council approved an Operational Requirements Document (ORD) revision documenting the change from a single IOC in Dec 99 (as documented in the Dec 99 SAR) to incremental IOCs in Sep 01, Sep 02, and Sep 03 (as will be documented in the SAR). The rephrasing includes moving to spiral development with system delivery in approximately 6 month increments beginning in Oct 00. Initial deployments will be to EUCOM.</p>			(U) \$17,279	Continue System Development and Test	(U) \$3,589	Continue Phase 2 Government System Integration	(U) \$1,394	Continue Program Support	(U) \$1,210	Continue Field Survey and Integration	(U) \$2,300	Continue Navy Terminal Support	(U) \$1,299	Provide System Test and Evaluation Support	(U) \$27,071	Total	(U) \$0	Funded in PE 63840F	(U) \$0	Total
(U) \$17,279	Continue System Development and Test																			
(U) \$3,589	Continue Phase 2 Government System Integration																			
(U) \$1,394	Continue Program Support																			
(U) \$1,210	Continue Field Survey and Integration																			
(U) \$2,300	Continue Navy Terminal Support																			
(U) \$1,299	Provide System Test and Evaluation Support																			
(U) \$27,071	Total																			
(U) \$0	Funded in PE 63840F																			
(U) \$0	Total																			
Project 2679	Page 4 of 14 Pages	Exhibit R-2A (PE 0603854F)																		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT 2679			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) Other APPN											
Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Defins Information System Network (DISN), DISA Information Dissemination Management Program, ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Tactical Demonstration (ACTD), ARPA-DISA Bosnia Command Control Augmentation (BC2A) Program including Joint Broadcast Service (JBS), Navy UFO Program, Army Ground Terminal Programs, Navy SATCOM Ship Terminal Program, and Air Force MILSATCOM Terminals (PE 33601): AF GBS Receive Terminals (BPAC 836780, line P-67, PE 33601, Milstar Satellite Comm Sys, Other Procurement, AF Ground Multiband Terminal (GMT) Develop, and AF Wideband Terminal (AWT) Development.											
(U) D. Acquisition Strategy											
(U) The acquisition strategy is being revised to a spiral development/incremental build approach using Integrated Product Development (IPD)/Integrated Product Team (IPT) approach.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U) Lease Commercial Transponder				*	*	*	*				
(U) Launch UFO #10 (Nov 99)				*							
(U) Initial Operational Capability											
(U) IOC 1									X		
(U) IOC 2											X
(U) IOC 3 (4QFY03, PE63840F)											
(U)											
	* = Completed Event										
	X = Planned Event										
Project 2679			Page 5 of 14 Pages				Exhibit R-2A (PE 0603854F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT 2679		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	System Development and Test				19,315		17,279			
(U)	Communication Connectivity/Interface				3,555		0			
(U)	Phase 2 Government System Integration				7,345		3,589			
(U)	Program Support				1,500		1,394			
(U)	Field Survey and Integration				1,673		1,210			
(U)	Navy Terminal Support				3,100		2,300			
(U)	System Test & Evaluation Support				983		1,299			
(U)	JTEO Support				3,189		0			
(U)	Total				40,660		27,071			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Raytheon Sys Co.	CPAF	18 Nov 97	N/A	N/A	104,472	19,315	17,279			141,066
Government/Various	Various	Various	N/A	N/A	52,308	14,000	5,741			72,049
<u>Support and Management Organizations</u>										
Various	Various	Various	N/A	N/A	35,598	6,362	2,752			44,712
<u>Test and Evaluation Organizations</u>										
Support for Development & Operational Test	Various	Various	N/A	N/A	888	983	1,299			3,170

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
							June 2001	
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT	
04 - Demonstration and Validation				0603854F Wideband MILSATCOM (Space)			2679	
(U) Government Furnished Property:								
	<u>Contract</u>	<u>Award or</u>						
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Description</u>	<u>Vehicle</u>							<u>Program</u>
<u>Product Development Property</u>								
TBD								
<u>Support and Management Property</u>								
TBD								
<u>Test and Evaluation Property</u>								
TBD								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
								<u>Program</u>
Subtotal Product Development				156,780	33,315	23,020		213,115
Subtotal Support and Management				35,598	6,362	2,752		44,712
Subtotal Test and Evaluation				888	983	1,299		3,170
Total Project				193,266	40,660	27,071		260,997

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					PROJECT 4811	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4811 Wideband Gapfiller	4,910	83,196	83,351	2,284	2,104	2,239	0	0	0	178,753	
NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.											
<p>(U) <u>A. Mission Description</u> The Wideband Gapfiller Satellites (WGS) will provide the DoD with high data rate military satellite communication (MILSATCOM) services in accordance with the Joint Space Management Board approved MILSATCOM Architecture dated Aug 96, the MILSATCOM Capstone Requirements Document approved by the Joint Requirements Oversight Council (JROC) in Oct 97, and JROC approved WGS Operational Requirements Document (May 00). This program was conceived to augment the near term 'bandwidth Gap' in Warfighter communication needs. The critical first WGS launch is scheduled for 2QFY04 with the remaining two launches scheduled in FY05.</p> <p>These dual frequency Wideband Gapfiller Satellites will augment the DoD's Interim Wideband System that includes the two-way Defense Satellite Communications System X-band service and one-way Global Broadcast Service Ka-band capabilities. In addition, WGS will provide a new high capacity two-way Ka-band service.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$4,910 Began Pre-Engineering and Manufacturing Development (EMD) (U) \$4,910 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$73,256 Begin EMD, including the Non-Recurring Engineering for all three satellites (U) \$3,418 Begin Joint Terminal Engineering Office (JTEO) Support (U) \$6,522 Begin Program Support (U) \$83,196 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$79,572 Complete EMD, including the NRE for all three satellites (U) \$2,246 Continue JTEO Support (U) \$1,533 Continue Program Support (U) \$83,351 Total</p>											
Project 4811			Page 8 of 14 Pages				Exhibit R-2A (PE 0603854F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)	PROJECT 4811
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(U) **B. Project Change Summary**
No change.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) MPAF, PE 33600F, WGS, Line P-18, Line P-19	0	25,500	390,956	189,815	18,604	12,358	14,605	14,789	0	666,627
(U) OPAF, PE 63854F, WGS PIPs	0	0	0	16,200	32,400	0	0	0	0	48,600
(U) OPAF, PE 33600F, CCS-C AF Terminals in PE 33601F, Other Procurement, AF	0	0	5,429	5,635	8,402	2,222	0	0	0	21,688

(U) **D. Acquisition Strategy**

The WGS program will make maximum use of commercial practices and technology in its FAR Part 12, FFP acquisition. All three satellites are purchased with Procurement funds, and the Non-Recurring Engineering (NRE) is funded in RDT&E. The WGS received MS II/III approval on 6 Nov 00 and awarded a FFP contract on 2 Jan 01.

(U) **E. Schedule Profile**

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Pre-EMD	*											
(U) Defense Acquisition Board Prep	*	*	*	*								
(U) DAB - MS II/III					*							
(U) EMD/Production Contract Award						*						
(U) EMD Completion												X
(U) 1st of 3 launches (2QFY04)												

x = planned event; * = completed event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT 4811			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Pre-EMD					4,910		0		0	
(U)	EMD					0		73,256		79,572	
(U)	JTEO Support					0		3,418		2,246	
(U)	Program Support					0		6,522		1,533	
(U)	Total					4,910		83,196		83,351	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	WGS Satellite EMD	FFP	Jan 01	152,828	152,828	0	0	73,256	79,572	0	152,828
<u>Support and Management Organizations</u>											
	JTEO	PR	Continuing	11,437	11,437	0	0	3,418	2,246	5,773	11,437
	Pre-EMD	Form 277	Dec 99	4,910	4,910	0	4,910	0	0	0	4,910
	International Studies	SS/CFFF/AF	Various	669	669	669	0	0	0	0	669
	Program Support	Various	Various	8,909	8,909	0	0	6,522	1,533	854	8,909
<u>Test and Evaluation Organizations</u>											
	AFOTEC, DT&E	TBD	TBD	TBD	TBD						
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	TBD										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation			0603854F Wideband MILSATCOM (Space)		4811	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
TBD						
<u>Test and Evaluation Property</u>						
TBD						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	0	0	73,256	79,572	0	152,828
Subtotal Support and Management	669	4,910	9,940	3,779	6,627	25,925
Subtotal Test and Evaluation						
Total Project	669	4,910	83,196	83,351	6,627	178,753

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)					PROJECT 4870		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4870	Command & Control System Consolidated (CCSC)	0	11,394	13,319	24,386	46,519	25,838	0	0	0	121,456
<p>NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> The MILSATCOM Command and Control System-Consolidated (CCS-C) system is being acquired to provide integrated launch and on-orbit command and control (C2) functionality for MILSATCOM satellites as the current capability provided by the Air Force Satellite Control Network (PE 0305110F) phases out according to plan. CCS-C will use modified commercial off the shelf hardware/software to control all emerging and legacy MILSATCOM systems (six different constellations) at reduced operating and maintenance costs.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$8,029 Begin Concept Demonstration Phase (U) \$3,365 Begin Program Support (U) \$11,394 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$953 Complete Concept Demonstration Phase (U) \$9,012 Begin Development of Command and Control Functionality (U) \$3,354 Continue Program Support (U) \$13,319 Total</p> <p>(U) <u>B. Project Change Summary</u> (U) None.</p>											
Project 4870			Page 12 of 14 Pages				Exhibit R-2A (PE 0603854F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)				PROJECT 4870		
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) AF Wideband 3080 Procurement (CCS-C), PE 33600F			5,429	5,635	8,402	2,222	0	0	0	21,688
(U) D. Acquisition Strategy										
Competitive contracts were awarded in Feb 01 to two teams to demonstrate capabilities using both RDT&E and procurement line items - the concept demonstration phase. Both contain fixed price options supporting down selection to a single team in 2QFY02 to develop the final functionality - the development phase.										
(U) E. Schedule Profile										
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
				1	2	3	4	1	2	3
(U) Concept Demonstration Contract Award								*		
(U) Option to Proceed										X
(U) Development Contract Downselect										X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603854F Wideband MILSATCOM (Space)			PROJECT 4870		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Concept Demonstration Phase					0		8,029		953
(U)	Development Phase					0		0		9,012
(U)	Program Support					0		3,365		3,354
(U)	Total					0		11,394		13,319
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Demonstration Contractors	FFP	Feb 01	8,982	8,982	0	0	8,029	953	0	8,982
Development Contractor	CPAF	Feb 02	94,727	94,727	0	0	0	9,012	85,715	94,727
<u>Support and Management Organizations</u>										
Various		Various			0	0	3,365	3,354	11,028	17,747
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>					0	0	8,029	9,965	85,715	103,709
Subtotal Product Development					0	0	3,365	3,354	11,028	17,747
Subtotal Support and Management					0	0	11,394	13,319	96,743	121,456
Subtotal Test and Evaluation					0	0	11,394	13,319	96,743	121,456
Total Project					0	0	11,394	13,319	96,743	121,456

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)					PROJECT 4782		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4782	Air Force/National Program Cooperation (AFNPC)	0	2,348	4,433	8,860	3,348	0	1,865	1,904	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

FY 2000 funding for current Air Force/National Program Cooperation (AFNPC) efforts was executed in PE 0305917F. FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) **A. Mission Description**
 This Program Element supports collaborative Air Force-intelligence community space efforts. At present, it funds two items that both began in FY 1999:

1) The AF/NRO Integration Planning Group (ANIPG) engenders greater AF-NRO synergies in R&D, operations, and programs by developing options for increasing integration across the entire range of AF and NRO space activities. ANIPG-developed recommendations on policies, plans, programs, requirements, architectures, acquisition, and resources are submitted to HQ USAF and NRO staffs and leadership for mutual agreement and implementation. Past, present, and future initiative areas include precision targeting, communications, combat identification, combat search & rescue, mission planning/rehearsal, joint acquisition, and reduction in operations personnel tempos for airborne intelligence, surveillance, and reconnaissance assets. ANIPG efforts are key facilitators for enhancing AF and NRO capabilities, increasing the cost-effectiveness of their space activities, and preventing duplication of efforts through low-cost, high-benefit initiatives. Funding level is determined by AF-NRO Memorandum of Agreement.

2) The Space-Based Infrared System Technical Intelligence (SBIRS TI) project develops capabilities to exploit SBIRS High sensor data for the technical intelligence mission. These enhancements provide data extraction, processing, exploitation, and dynamic sensor cross-cueing capabilities needed to meet fundamental SBIRS requirements for strategic and theater missile defense, technical intelligence, and battlespace characterization. The project assists in satisfying SBIRS Operational Requirements Document threshold requirements for real-time technical intelligence by (A) developing backup centers for remotely-controlled TI pre-processing at remote ground stations and (B) integrating SBIRS data with other intelligence source data for synergistic effects. Obtained TI is used in real-time and non-real-time to maximize operational weapons system effectiveness by optimizing detection, classification/typing, and negation capabilities for warning and active defense systems. Beyond Operational Requirements Document threshold requirements, SBIRS TI efforts are meant to establish real-time and non-real-time collaborative efforts in order to maximize SBIRS tasking efforts.

Project 4782 Page 1 of 6 Pages Exhibit R-2 (PE 0603856F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE June 2001	
BUDGET ACTIVITY 04 - Demonstration and Validation		PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation		PROJECT 4782	
		(AFNPC)			
(U) <u>A. Mission Description Continued</u>					
The intelligence community provides additional funds for these joint projects as reported in Congressional Budget Justification Books.					
(U) <u>FY 2000 (\$ in Thousands)</u>					
(U)	\$0	FY 2000 AFNPC funding was executed in PE 0305917F			
(U)	\$0	Total			
(U) <u>FY 2001 (\$ in Thousands)</u>					
(U)	\$882	Continue technical support to the AF/NRO Integration Planning Group (ANIPG)			
(U)	\$1,466	Continue to develop processing capabilities to exploit SBIRS sensor data for technical intelligence			
(U)	\$2,348	Total			
The following net transaction is not reflected in the FY01 program total: SBIR = -\$150K. This transaction is not reflected in other sections of the R-DOCs where an FY01 total is shown.					
(U) <u>FY 2002 (\$ in Thousands)</u>					
(U)	\$1,650	Technical support to the AF/NRO Integration Planning Group (ANIPG)			
(U)	\$2,783	Develop processing capabilities to exploit SBIRS sensor data for technical intelligence (establishes Link 3 Preprocessors IOC in Mission Control Station in FY02)			
(U)	\$4,433	Total			
(U) <u>B. Budget Activity Justification</u>					
(U) This PE is in Budget Activity 4, Demonstration and Validation, because these projects involve testing and demonstrating new cooperative efforts.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	0	3,370	4,415	TBD
(U)	Appropriated Value	0	2,370		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-17		
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram				
Project 4782		Page 2 of 6 Pages		Exhibit R-2 (PE 0603856F)	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
04 - Demonstration and Validation					0603856F Air Force/National Program Cooperation (AFNPC)					4782		
(U) C. Program Change Summary (\$ in Thousands) Continued												
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>Total Cost</u>	
d. Below Threshold Reprogram												
e. Rescissions												
							-5					
(U)	Adjustments to Budget Years Since FY 2001 PBR								18			
(U)	Current Budget Submit/FY 2002 PBR				0		2,348		4,433		TBD	
(U)	<u>Significant Program Changes:</u>											
	FY 00: Funding for these efforts was executed in PE 0305917F.											
	FY 02: Adjustment supports higher Air Force priorities.											
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	Intelligence Community*											
	*Not available											
(U) E. Acquisition Strategy												
	ANIPG activities are level of effort and use SETA support contracts and FFRDC. SBIRS TI activities are executed as part of the SBIRS High program on its cost plus award fee contract.											
(U) F. Schedule Profile												
					<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
					1	2	3	4	1	2	3	4
(U)	ANIPG Efforts:											
(U)	Expeditionary Aerospace Force (EAF) Support Issues									*	X	
(U)	Multi-Mission Satellites Exploration									*	X	
(U)	Low-Density High-Demand (LDHD) Asset Relief Issues									*	X	
(U)	Space Staff Meeting Integration Reviews									*	X	
(U)	Implement Space Commission/SECDEF directions									*		
(U)	SBIRS TI Capability Development:									*		
Project 4782			Page 3 of 6 Pages					Exhibit R-2 (PE 0603856F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782
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(U) F. Schedule Profile Continued

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				
	1	2	3	1	2	3	4	1	2	3	4
(U) Global Connectivity Service (see note 1)				*				*			X
(U) NSTS/DICES (see note 1)				*				*			X
(U) Remote Technical Intelligence Console Design & Development				*				*			X
(U) CTIC/BTIC Design & Development				*				*			X
(U) Link 3 Preprocessors (see note 2)				*				*			X

* = Completed Event
X = Planned Event

Notes:

1. These capabilities are being developed for several locations over this time period. Only their Initial Operating Capabilities in the Mission Control Station location were noted in the FY 2001 RDT&E budget justification exhibit.
2. This was listed as 'Technical Intelligence Real Time Ops Design & Development' in the FY 2001 RDT&E budget justification exhibit.

SBIRS TI acronyms are as follows:

NSTS/DICES - National Security Agency (NSA) Secure Telephone System / Digital Integrated Communications Electronic System
CTIC/BTIC - Collaborative Technical Intelligence Center / Backup Technical Intelligence Center

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE
June 2001

BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603856F Air Force/National Program Cooperation (AFNPC)	PROJECT 4782
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(U) **A. Project Cost Breakdown (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
(U) Technical support to the AF/NRO Integration Planning Group	0	882	1,650
(U) Develop processing capability to exploit SBIRS data for TI	0	1,466	2,783
(U) Total	0	2,348	4,433

Note: FY 2000 funding for these efforts was executed under PE 0305917F.

(U) **B. Budget Acquisition History and Planning Information (\$ in Thousands)**

(U) **Performing Organizations:**

<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
(U) SMC	MIPR	12/98	14,108	14,108	1,129	0	1,466	2,783	8,730	14,108
<u>Support and Management Organizations</u>										
(U) ANIPG	MIPR	10/98	Continuing	Continuing	813	0	882	1,650	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Not Applicable										

Note: FY 2000 funding for these efforts was executed under PE 0305917F.

(U) **Government Furnished Property:**

<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>									
None									

Project 4782

Page 5 of 6 Pages

Exhibit R-3 (PE 0603856F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
04 - Demonstration and Validation		June 2001				
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
04 - Demonstration and Validation		0603856F Air Force/National Program Cooperation (AFNPC)				4782
(U) Government Furnished Property Continued:						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
<u>Subtotals</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	1,129	0	1,466	2,783	8,730	14,108
Subtotal Support and Management	813	0	882	1,650	TBD	TBD
Subtotal Test and Evaluation						
Total Project	1,942	0	2,348	4,433	TBD	TBD
Note: FY 2000 funding for these efforts was executed under PE 0305917F.						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603859F Pollution Prevention					PROJECT 4852	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4852	Pollution Prevention	0	2,519	2,688	2,750	2,809	2,867	2,927	2,989	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

All funds were transferred from PE 65854f, Budget Activity 6 (Management & Support) to PE 63859f, Budget Activity 4 (Demonstration and Validation) beginning in FY01 to reflect the primary purpose of the funding profile; i.e. RDT&E Dem/Val of Pollution Prevention Technologies. See R-doc for PE 65854f for FY00 program summary.

(U) **A. Mission Description**
 FY01 funds will be used to target R&D activities that demonstrate and validate alternative aircraft painting/depainting, maintenance processes that reduce compliance burden associated with National Emissions Standards for Hazardous Air Pollutants (Clean Air Act driven), and other hazardous waste reduction Dem/Val requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacement for cadmium plating.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$500 Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste
 (U) \$100 Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste
 (U) \$899 Clean Air Act
 (U) \$235 Clean Water Act
 (U) \$549 Hazardous Material Reduction
 (U) \$236 Other
 (U) \$2,519 Total

Project 4852 Page 1 of 5 Pages Exhibit R-2 (PE 0603859F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																																			
BUDGET ACTIVITY 04 - Demonstration and Validation	PE NUMBER AND TITLE 0603859F Pollution Prevention	PROJECT 4852																																																																			
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">(U) \$763</td> <td>Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste</td> </tr> <tr> <td>(U) \$1,320</td> <td>Clean Air Act</td> </tr> <tr> <td>(U) \$195</td> <td>Clean Water Act</td> </tr> <tr> <td>(U) \$293</td> <td>Hazardous Material Reduction</td> </tr> <tr> <td>(U) \$117</td> <td>Other</td> </tr> <tr> <td>(U) \$2,688</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Authority (BA) 4, Demonstration and Validation, because this account is primarily for Research, Demonstration, Testing and Evaluation demonstration and validation of pollution prevention technologies to eliminate/reduce hazardous materials/waste and overall total ownership costs to the Air Force. BA 6, Management and Support, was the prior BA that will terminate the end of FY00.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td></td> <td style="text-align: center;">2,543</td> <td style="text-align: center;">2,672</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td style="text-align: center;">2,543</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td style="text-align: center;">-24</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: center;">16</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td></td> <td style="text-align: center;">2,519</td> <td style="text-align: center;">2,688</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>'Other' represents non-pay inflation adjustments to current budget year.</p> <p>(U) <u>Significant Program Changes:</u> None.</p>			(U) \$763	Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste	(U) \$1,320	Clean Air Act	(U) \$195	Clean Water Act	(U) \$293	Hazardous Material Reduction	(U) \$117	Other	(U) \$2,688	Total		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)		2,543	2,672	TBD	(U) Appropriated Value		2,543			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions		-24			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2001 PBR			16		(U) Current Budget Submit/FY 2002 PBR		2,519	2,688	TBD
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(U) \$117	Other																																																																				
(U) \$2,688	Total																																																																				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																																	
(U) Previous President's Budget (FY 2001 PBR)		2,543	2,672	TBD																																																																	
(U) Appropriated Value		2,543																																																																			
(U) Adjustments to Appropriated Value																																																																					
a. Congressional/General Reductions		-24																																																																			
b. Small Business Innovative Research																																																																					
c. Omnibus or Other Above Threshold Reprogram																																																																					
d. Below Threshold Reprogram																																																																					
e. Rescissions																																																																					
(U) Adjustments to Budget Years Since FY 2001 PBR			16																																																																		
(U) Current Budget Submit/FY 2002 PBR		2,519	2,688	TBD																																																																	
Project 4852	Page 2 of 5 Pages	Exhibit R-2 (PE 0603859F)																																																																			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE			
							June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603859F Pollution Prevention				4852		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
Not Applicable										
(U) E. Acquisition Strategy										
Pollution Prevention activities are level of effort and use time and materials support contracts.										
(U) F. Schedule Profile										
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
				1	2	3	4	1	2	3
(U) Prototype Development								X		
(U) Demonstration/Validation									X	X
(U) Contract Completion										X

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603859F Pollution Prevention			PROJECT 4852			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Development Test and Evaluation							423		444	
(U)	Operational Test and Evaluation							749		1,156	
(U)	Contractor Engineering Support							1,082		787	
(U)	Program Management Support							200		210	
(U)	Miscellaneous							65		91	
(U)	Total							2,519		2,688	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Air Force Research Lab	TBD	30 Mar 00	N/A	N/A	0	0	711	842	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Aerospace Systems Center	TBD	30 Mar 00	N/A	N/A	0	0	739	528	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	Air Force Research Lab	TBD	30 Mar 00	N/A	N/A	0	0	1,069	1,318	Continuing	TBD
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										
Project 4852					Page 4 of 5 Pages			Exhibit R-3 (PE 0603859F)			

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT	
04 - Demonstration and Validation			0603859F Pollution Prevention		4852	
(U) Government Furnished Property Continued:						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development		0	0	711	842	TBD
Subtotal Support and Management		0	0	739	528	TBD
Subtotal Test and Evaluation		0	0	1,069	1,318	TBD
Total Project		0	0	2,519	2,688	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val				PROJECT 4652			
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4652	Precision Landing Systems		15,461	17,926	9,554	13,032	9,971	9,271	9,434	9,637	Continuing	TBD
Quantity of RDT&E Articles			0	0	0	0	0	0	0	0	0	0
FY03-FY07 budget numbers do not reflect the DoD strategic review results.												
(U) A. Mission Description												
<p>Joint Precision Approach and Landing System (JPALS) is a joint effort among the United States (U.S.) Air Force (AF), and Army. The AF is designated as the lead service. JPALS will define the future precision approach and landing system for the Department of Defense (DoD) to provide a joint operational capability for U.S. forces to perform assigned conventional and special operational missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will ensure DoD maintains civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. When complete, this effort will replace aging ship-board and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Instrument Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling US forces to land on any airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exist. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and ensure interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The 1997, JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance in the presence of GPS jamming. Second, it's architecture will be developed to integrate and synchronize with related Global Air Traffic Management (GATM) and GPS modernization initiatives. Third, JPALS will develop and integrate encrypted data links and antenna sets. And finally, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 15,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.</p>												
Project 4652			Page 1 of 7 Pages					Exhibit R-2 (PE 0603860F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
04 - Demonstration and Validation	0603860F Joint Precision Approach and Landing Systems - Dem/Val	4652
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$721	Continued Architecture Definition	
(U) \$978	Continued aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$7,198	Continued shipboard risk reduction prototypes, studies and integration analyses	
(U) \$6,564	Continued development of LDGPS test bed (prototype)	
(U) \$15,461	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$587	Complete Architecture Definition	
(U) \$997	Continue aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$8,901	Complete shipboard risk reduction prototypes, studies and integration analyses	
(U) \$7,229	Continue development of LDGPS test bed (prototype)	
(U) \$212	Begin LDGPS flight test and evaluation and modeling and simulation activities	
(U) \$17,926	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$1,414	Continue aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$840	Complete development of LDGPS test bed (prototype)	
(U) \$1,511	Complete LDGPS flight test and evaluation and modeling and simulation activities	
(U) \$1,214	Begin system engineering studies to refine local LDGPS architecture	
(U) \$2,394	Begin LDGPS test bed upgrade (prototype)	
(U) \$1,183	Begin ALC studies and deployable ground station miniaturization	
(U) \$998	Begin GPS modernization compatibility analyses and military tactical data link studies	
(U) \$9,554	Total	
(U) <u>B. Budget Activity Justification</u>		
This program is in budget activity 4, Demonstration and Validation, Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.		
Project 4652	Page 2 of 7 Pages	Exhibit R-2 (PE 0603860F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001					
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val				PROJECT 4652			
(U) C. Program Change Summary (\$ in Thousands)												
					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)				16,290	18,092	9,717		TBD			
(U)	Appropriated Value				16,488	18,092						
(U)	Adjustments to Appropriated Value											
	a. Congressional/General Reductions				-66							
	b. Small Business Innovative Research				-494							
	c. Omnibus or Other Above Threshold Reprogram											
	d. Below Threshold Reprogram				-403							
	e. Rescissions				-64	-166						
(U)	Adjustments to Budget Years Since FY 2001 PBR						-163					
(U)	Current Budget Submit/FY 2002 PBR				15,461	17,926	9,554		TBD			
(U)	<u>Significant Program Changes:</u>											
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	Other APPN											
(U) E. Acquisition Strategy												
Demonstration and Validation, multiple contracts, Fixed Price Incentive Fee (FPIF), Firm Fixed Priced contracts (FFP); no Non-Developmental Items (NDI)												
(U) F. Schedule Profile												
					<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
					1	2	3	4	1	2	3	4
(U)	Complete Architecture and Requirements Definition								*			
(U)	LDGPS demonstration system flight test									X		
(U)	LDGPS test bed delivery (prototype)										X	
(U)	SRGPS demonstration system flight test							*				
(U)	SRGPS test bed delivery (prototype)								*			
Project 4652												
Page 3 of 7 Pages												
Exhibit R-2 (PE 0603860F)												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT				
04 - Demonstration and Validation				0603860F Joint Precision Approach and Landing Systems - Dem/Val				4652				
(U) F. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Modeling/Simulation evaluations								X			
(U)	LDGPS test bed upgrade								X			
(U)	Development of ALC								X			
(U)	Ground Station Miniaturization									X		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0603860F Joint Precision Approach and Landing Systems - Dem/Val			4652		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Prototype Developments - LDGPS test bed and SRGPS				8,268		9,196			3,534
(U)	Integration studies and analyses to support completion of prototype development and follow-on risk reduction activities				5,957		7,256			2,755
(U)	LDGPS test bed upgrade (prototype)									2,394
(U)	Systems Engineering/Technical Support for architecture refinement				663		603			616
(U)	Responsible Test Organization activities to support prototype lab, van and flight testing				341		600			
(U)	Program Management Support				205		228			200
(U)	Travel				27		43			55
(U)	Total				15,461		17,926			9,554
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Raytheon Systems (LDGPS)	CPAF	May 99	N/A	N/A	4,055	3,340	5,612	840	Continuing	TBD
Raytheon Systems (SRGPS)	CPFF	June 99	N/A	N/A	2,436	904	0	0	0	3,340
ARINC Inc.	FFP	Jan 99	N/A	N/A	1,051	706	0	0	0	1,757
Horizons Technology Inc	IDIQ	Feb 99	N/A	N/A	2,405	1,941	857	1,429	Continuing	TBD
Rockwell Collins Inc.	FFP	Apr 99	N/A	N/A	300	800	700	0	0	1,800
Navy PMA21381	Reimbursable	Nov 99	N/A	N/A	3,419	5,668	7,249	0	0	16,336
MITRE Corporation	CPAF	Oct 99	N/A	N/A	534	663	752	616	Continuing	TBD
PRC Corporation	FFP	Jan 99	N/A	N/A	451	0	0	0	0	451
Pacer Infotech Inc.	FPFF	May 99	N/A	N/A	512	0	0	0	0	512
MCR	IDIQ	Apr 99	N/A	N/A	212	135	107	112	Continuing	TBD
Project 4652					Page 5 of 7 Pages			Exhibit R-3 (PE 0603860F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
										June 2001
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
04 - Demonstration and Validation					0603860F Joint Precision Approach and Landing Systems - Dem/Val					4652
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
Sierra Nevada Corp	CPFF	Mar 99	N/A	N/A	276	0	700	0	0	976
Lockheed Martin Services	FFP	Mar 99	N/A	N/A	243	0	0	0	0	243
Litton Corp	FFP	May 01	N/A	N/A	0	0	180	0	0	180
Various	Various	Various	N/A	N/A	2,965	731	898	0	0	4,594
TBD Contracts										
Modeling/Simulation	FFP	1Qtr FY02	N/A	N/A	0	0	0	1,511	Continuing	TBD
LDGPS Test Bed Upgrade	FPIF	1Qtr FY02	N/A	N/A	0	0	0	3,608	Continuing	TBD
Ground Station	FFP	1Qtr FY02	N/A	N/A	0	0	0	1,183	Continuing	TBD
Miniaturization										
<u>Support and Management Organizations</u>										
MITRE Corp	FFP	Various	N/A	N/A	218	205	228	200	Continuing	TBD
Various	FFP	Various	N/A	N/A	232	27	43	55	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Navy - NAWCAD	Reimbursable	Nov 99	N/A	N/A	250	341	450	0	0	1,041
48TG/XPRF	Reimbursable	May 01	N/A	N/A	0	0	150	0	0	150
(U) Government Furnished Property:										
<u>Contract</u>										
<u>Item</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Obligation</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
Project 4652					Page 6 of 7 Pages			Exhibit R-3 (PE 0603860F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT	
04 - Demonstration and Validation	0603860F Joint Precision Approach and Landing Systems - Dem/Val				4652	
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotals						
Subtotal Product Development	18,859	14,888	17,055	9,299	TBD	TBD
Subtotal Support and Management	450	232	271	255	TBD	TBD
Subtotal Test and Evaluation	250	341	600	0	0	1,191
Total Project	19,559	15,461	17,926	9,554	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0604327F Hardened Target Munitions					PROJECT 4641		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4641	Hard and Deeply Buried Target Defeat System (HDBTDS)	4,692	0	0	0	0	0	0	0	0	11,307
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Footnote: FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 The Hard and Deeply Buried Target Defeat System (HDBTDS) program is an effort designed to hold at risk those highest priority assets essential to the enemy's war fighting ability, which are heavily defended and protectively hardened. Hardening techniques include construction of facilities, many of which are deep underground with multiple layers of reinforced concrete, rock rubble, and/or earth overburden. Other hardened targets include operations within caves, tunnels, and mountains built using rapidly improving construction equipment exported by allies and adversaries on a large scale. (Examples include enemy command and control facilities, air defense facilities, facilities for the production, storage, and deployment of weapons including weapons of mass destruction, surface to surface missile launch sites, aircraft storage sites, artillery sites.) Potential solutions include (but are not limited to) Special Forces, conventional short or long range ballistic missiles (land or sea launched), cruise missiles, direct attack munitions, and standoff weapons.

An Analysis of Alternatives (AOA) was conducted to evaluate the weapon concepts to determine the most promising concepts to move forward into a follow-on program. The potential weapon concepts were evaluated in an air campaign analysis. The results of the AOA were presented to the Joint Requirements Oversight Council (JROC) in 4th Quarter FY 1999.

The AOA has been documented into a report for future reference. The primary legacy hard target penetrator weapon, GBU-28, was tested in rock to validate computer models used in the AOA analysis and to provide test data for future use when considering weapon design alternatives for increased penetration capability. The results were presented in 1st Quarter FY 2001.

(U) **FY 2000 (\$ in Thousands)**

(U) \$863 Documented AOA analysis into a report for future reference and use by other DoD analysis organizations. Important data in the AOA report includes the worldwide hard and deeply buried target set, key intelligence inputs and requirements, weapon concept descriptions including life cycle cost estimates, and modeling assumptions and methodology.

(U) \$2,250 Conducted GBU-28 rock test program. Inventory GBU-28 assets were filled with an inert explosive and launched from an F-15E aircraft into rock targets to validate models and provide data for potential future design of improved warhead penetration capability.

Project 4641 Page 1 of 5 Pages Exhibit R-2 (PE 0604327F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
04 - Demonstration and Validation	0604327F Hardened Target Munitions	4641		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2000 (\$ in Thousands) Continued</u>				
(U) \$1,099	Conducted field agency activities. This included project office and contractor support to manage the Hardened Target Munitions program that consisted of testing GBU-28 in rock in coordination with the Defense Threat Reduction Agency (DTRA), and documentation of the AOA.			
(U) \$480	System Engineering and Technical Analysis (SETA) support included evaluation of GBU-28 performance in rock and design analysis and prototype evaluation of potential future upgrades to the GBU-28 5000 lb hard target penetrator weapon and other legacy weapons.			
(U) \$4,692	Total			
(U) <u>FY 2001 (\$ in Thousands)</u>				
(U) \$0	No Activity			
(U) \$0	Total			
(U) <u>FY 2002 (\$ in Thousands)</u>				
(U) \$0	No Activity			
(U) \$0	Total			
(U) <u>B. Budget Activity Justification</u>				
This program is in budget activity 4 - Demonstration and Validation, because the program would examine a Hard Target Munitions capability to precisely hit and destroy hard and deeply buried targets not currently held at risk.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	4,840	0	0	11,455
(U) Appropriated Value	4,910			12,891
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-31			
b. Small Business Innovative Research	-140			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-28			
e. Rescissions	-19			
(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	0	0
(U) Current Budget Submit/FY 2002 PBR	4,692	0	0	11,307
Project 4641				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																																																																																														
BUDGET ACTIVITY 04 - Demonstration and Validation				PE NUMBER AND TITLE 0604327F Hardened Target Munitions				PROJECT 4641																																																																																																																													
<p>(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u></p> <p>(U) <u>Significant Program Changes:</u> Funding: FY 1999 funding was reduced from \$9.8M to \$3.0M for the Air Force and from \$9.8M to \$3.0M for the Navy. This reduction eliminated ongoing parameter analysis and trade study efforts. All Air Force and Navy funding was combined to complete the AOA analysis and prepare for follow-on program. FY 2000 funding was added to document the AOA into a report; conduct testing and evaluation of the GBU-28 5000 lb weapon in rock; and perform design analysis and evaluation of potential future upgrades to the GBU-28 hard target penetrator weapon and other legacy weapons.</p> <p>Schedule: The AOA was extended to evaluate additional concepts and conduct a survivability analysis. The AOA was completed in 4Q FY 1999</p> <p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align:center;"><u>Actual</u></td> <td style="text-align:center;"><u>Estimate</u></td> <td style="text-align:center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Not Applicable</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>E. Acquisition Strategy</u> The contract to perform the AOA work was a modification to an existing Systems Engineering and Technical Assistance (SETA) support contract to the Ogden Air Logistics Center (OO-ALC) ICBM System Program Office (SPO) - a Cost Plus Award Fee (CPAF) contract filled by TRW (Colorado Springs). Hardened Target Munitions Program alternatives were fully evaluated in the AOA. At the conclusion of the AOA, the Air Force had the necessary information to support the GBU-28 5000 lb weapon as the most cost-effective alternative to defeat hard and deeply buried targets and to conduct investigations into improvements of the GBU-28 and other legacy weapons.</p> <p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="4" style="text-align:center;"><u>FY 2000</u></th> <th colspan="4" style="text-align:center;"><u>FY 2001</u></th> <th colspan="4" style="text-align:center;"><u>FY 2002</u></th> </tr> <tr> <td></td> <td style="text-align:center;">1</td><td style="text-align:center;">2</td><td style="text-align:center;">3</td><td style="text-align:center;">4</td> <td style="text-align:center;">1</td><td style="text-align:center;">2</td><td style="text-align:center;">3</td><td style="text-align:center;">4</td> <td style="text-align:center;">1</td><td style="text-align:center;">2</td><td style="text-align:center;">3</td><td style="text-align:center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Complete AOA</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Brief AOA Results</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Publish AOA Report</td> <td></td><td></td><td></td><td></td><td style="text-align:center;">*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Conduct Testing in Rock</td> <td></td><td></td><td></td><td></td><td style="text-align:center;">*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Report Rock Test Results</td> <td></td><td></td><td></td><td></td><td></td><td style="text-align:center;">*</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>* = Completed event X = Planned event</p>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not Applicable												<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Complete AOA													(U) Brief AOA Results													(U) Publish AOA Report					*								(U) Conduct Testing in Rock					*								(U) Report Rock Test Results						*												
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																																											
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Project 4641			Page 3 of 5 Pages				Exhibit R-2 (PE 0604327F)																																																																																																																														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
04 - Demonstration and Validation					0604327F Hardened Target Munitions			4641		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	AOA					863		0		0
(U)	Field Agency and Contractor Support					1,099		0		0
(U)	SETA Contractor					480		0		0
(U)	GBU-28 Test Assets					200		0		0
(U)	GBU-28 T&E					2,050		0		0
(U)	Total					4,692		0		0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
SETA Contractor	SS/CPAF	Oct 99	480	480	0	480	0	0	0	480
TRW (CO Spgs)	SS/CPAF	Oct 96	8,894	8,894	3,151	863	0	0	0	4,014
Note: EAC estimate by Performing Activity and Project Office includes FY96 and FY97 funds from PE 0603311F.										
<u>Support and Management Organizations</u>										
TRW (Fairfax, VA)	SS/CPAF	Dec 98	N/A	N/A	225	253	0	0	0	478
AFMC/OAS Kirtland AFB	MIPR	Dec 97	N/A	N/A	30	10	0	0	0	40
SMC/TE (Kirtland)	MIPR	Oct 97	N/A	N/A	1,115	0	0	0	0	1,115
AAC/WMG (Eglin)	MIPR	Oct 97	N/A	N/A	2,094	1,036	0	0	0	3,130
<u>Test and Evaluation Organizations</u>										
WSMR (White Sands)	MIPR	Dec 99	N/A	N/A	0	1,350	0	0	0	1,350
F-15 Support (Eglin)	MIPR	Dec 99	N/A	N/A	0	700	0	0	0	700

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
BUDGET ACTIVITY				PROJECT					
04 - Demonstration and Validation				0604327F Hardened Target Munitions					
				4641					
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
	<u>or Funding</u>	<u>Date</u>	<u>Date</u>						
<u>Vehicle</u>									
<u>Product Development Property</u>									
N/A									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
<u>Subtotals</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				3,151	1,343	0	0	0	4,494
Subtotal Support and Management				3,464	1,299	0	0	0	4,763
Subtotal Test and Evaluation				0	2,050	0	0	0	2,050
Total Project				6,615	4,692	0	0	0	11,307

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0207249F Precision Attack Systems					PROJECT 2693	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2693	Lantirn	0	3,928	5,984	0	0	0	0	0	0	9,912
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) **A. Mission Description**
 The primary mission of the Low Altitude Navigation and Targeting Infrared for Night (LANTIRN) targeting and navigation pods is to execute surgical strike operations under various conditions. The targeting pod is the core of the Combat Air Forces (CAF) precision guided munitions (PGM) capability, the heart of F-15E and F-16Blk40 operations. A suite of support equipment provides maintenance analysis for organic pod repair. The mission capable rate of the pods is related to the availability of the support equipment. This equipment utilizes early 1980's technology and is in serious decline. Operators experience excessive down-time due to obsolete parts and ever decreasing repair capability. The System Program Office has developed a plan to upgrade the support equipment, replacing obsolete parts with commercial off-the-shelf components, increasing throughput by 70 percent, and facilitating AEF-tailored, small footprint, rapid deployment capability.

Without this upgrade, support equipment sustainability and thus, pod operability, are questionable after FY01.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$3,928 Required development and engineering for upgrade of LANTIRN support equipment, and development of associated technical data and drawings.
 (U) \$3,928 Total

(U) **FY 2002 (\$ in Thousands)**
 (U) \$5,984 Required development and engineering for upgrade of LANTIRN support equipment, and development of associated technical data and drawings.
 (U) \$5,984 Total

Project 2693 Page 1 of 4 Pages Exhibit R-2 (PE 0207249F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																								
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0207249F Precision Attack Systems			PROJECT 2693																																																								
<p>(U) <u>B. Budget Activity Justification</u> The LANTIRN SE upgrade program is in budget activity 5 - Engineering and Manufacturing Development because it is in engineering and manufacturing development and has not received full-rate production approval..</p>																																																															
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td></td> <td style="text-align: right;">3,965</td> <td style="text-align: right;">5,985</td> <td style="text-align: right;">9,150</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td style="text-align: right;">3,965</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td style="text-align: right;">-37</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">-1</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td></td> <td style="text-align: right;">3,928</td> <td style="text-align: right;">5,984</td> <td style="text-align: right;">9,912</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p>										<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)		3,965	5,985	9,150	(U) Appropriated Value		3,965			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions		-37			(U) Adjustments to Budget Years Since FY 2001 PBR			-1		(U) Current Budget Submit/FY 2002 PBR		3,928	5,984	9,912
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	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																					
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(U) AF RDT&E																																																															
(U) Other APPN																																																															
<p>(U) <u>E. Acquisition Strategy</u> The majority of engineering and development of the upgrade to the LANTIRN Intermediate Automatic Test Equipment (LIATE) and Electro-Optical Test Set (EOTS) will be completed under the Commercial Operations and Support Savings Initiative (COSSI), a DoD-funded program. We will award a contract for any additional engineering development for the LIATE and EOTS and/or for the remaining three test stations in the LANTIRN support equipment suite. Development of the associated technical data and drawings for the upgraded equipment will also be required.</p>																																																															
<p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>Project 2693</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>										<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	Project 2693																																																		
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0207249F Precision Attack Systems					PROJECT 2693			
(U) <u>F. Schedule Profile Continued</u>													
		<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>	
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Award contract for LANTIRN SE upgrade											X	
Project 2693				Page 3 of 4 Pages				Exhibit R-2 (PE 0207249F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0207249F Precision Attack Systems			PROJECT 2693			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Develop LANTIRN SE upgrade and tech data							3,928		5,984	
(U)	Total							3,928		5,984	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	Lockhee Martin Space and Missiles							3,928	5,984	0	9,912
	<u>Product Development Organizations</u>										
	<u>Support and Management Organizations</u>										
	<u>Test and Evaluation Organizations</u>										
	<u>Subtotals</u>					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
								3,928	5,984	0	9,912
	Subtotal Product Development										
	Subtotal Support and Management										
	Subtotal Test and Evaluation										
	Total Project							3,928	5,984	0	9,912

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0207701F Full Combat Mission Training					PROJECT 5012	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5012	Full Combat Mission Training	0	0	3,763	3,740	3,818	3,897	3,976	4,061	0	0
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note 1: FY 02-FY07 funding transferred from PE 64227F, Distributed Mission Training, to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program new start.

Note 2: FY03-FY07 budget numbers do not reflect the DOD strategic review results.

(U) **A. Mission Description**
 Distributed Mission Training (DMT) is revolutionizing aerospace team training by implementing a 'train the way we fight' philosophy -- as a team. The DMT program provides a shared synthetic environment of geographically separated aircraft simulators and will link real time to C3I assets and other battlefield systems in a synthetic battlefield environment. This will allow the Air Force to conduct mission rehearsal and combat mission training, which today can only be done to a limited extent because of constraints on flying hours, platform and airspace availability, as well as environmental constraints. DMT is funded principally with Operations and Maintenance funds. Engineering development efforts focus on development, demonstration, and transitioning of enhancements of critical functions associated with the DMT network and linked simulators. Areas of emphasis include development and demonstration of network architectures, common databases and database interfaces, improved simulator fidelity, and integration with constructive simulations for C3I. The ultimate objective of the program is for DMT to be able to conduct full joint and combined forces mission rehearsals.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
		June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0207701F Full Combat Mission Training	5012		
(U) A. Mission Description Continued				
(U) FY 2002 (\$ in Thousands)				
(U) \$462	Continued development, demonstration and insertion of multi-level security capability			
(U) \$1,933	Continued development, demonstration and insertion of DMT related technologies. Includes but not limited to common databases and improved image generation fidelity			
(U) \$1,368	Continued Program office support			
(U) \$3,763	Total			
(U) B. Budget Activity Justification				
his program element is included in Budget Activity 5 - Engineering and Manufacturing Development (EMD) as it supports development, demonstration and insertion of Distributed Mission Training applications.				
(U) C. Program Change Summary (\$ in Thousands)				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)			0	TBD
(U) Appropriated Value				
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions				
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions				
(U) Adjustments to Budget Years Since FY 2001 PBR			3,763	
(U) Current Budget Submit/FY 2002 PBR			3,763	TBD
(U) Significant Program Changes:				
FY 02-FY07 funding transferred from PE 64227F, Distributed Mission Training, to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program new start.				
Project 5012	Page 2 of 4 Pages	Exhibit R-2 (PE 0207701F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0207701F Full Combat Mission Training				PROJECT 5012		
(U) D. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) PE 0207701F, Full Combat Mission Training, O&M, AF	0	0	76,863	75,517	68,674	67,621	68,657	69,734	Continuing	TBD	
(U) E. Acquisition Strategy											
An innovative acquisition strategy is being employed for some weapon systems in conjunction with DMT. Termed Commercial Training Simulation Service (CTSS), this strategy differs significantly from previous AF simulator procurements. It shifts from govt-procured simulators to a contractor-provided service. The contractor owns and provides the simulator equipment, maintains simulator concurrency with the weapons system, and has incentives to keep his equipment abreast with the latest simulator and network technologies. CTSS contracts are currently in place for F-15C, F-16, AWACS, and Operations and Integration.											
(U) F. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U) F-16 Four Ship Operations begin: Shaw AFB										X	
(U) F-16 Single Ship Operations begin: MT Home										X	
Project 5012											
Page 3 of 4 Pages											
Exhibit R-2 (PE 0207701F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0207701F Full Combat Mission Training				5012		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>
(U)	Multi-level Security									462
(U)	Develop,demonstrate,insert DMT Technology									1,933
(U)	Support and management									1,368
(U)	Total									3,763
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
	Training Systems Product							2,395	Continuing	TBD
	Group									
<u>Support and Management Organizations</u>										
	Training Systems Product							1,368	Continuing	TBD
	Group									
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
	Subtotal Product Development							2,395	TBD	TBD
	Subtotal Support and Management							1,368	TBD	TBD
	Subtotal Test and Evaluation									
	Total Project							3,763	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator					PROJECT 4522	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4522	CSAR EMD	12,863	10,742	11,486	1,409	0	0	0	0	0	83,372
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>This administration has not addressed FY2003-2007 requirements. All FY2003-2007 budget estimates included in this book are notional and subject to change.</p> <p>(U) <u>A. Mission Description</u> The Combat Survivor Evader Locator (CSEL) joint program, with the Air Force as lead service, will provide enhanced Combat Search and Rescue (CSAR) communications and location capabilities by replacing antiquated PRC-90 and -112 survivor radios with current and emerging technologies in a new end-to-end system. The CSEL system will be used by all the services and DoD, and, potentially, non-DoD government agencies. CSEL system features include a new hand-held radio that incorporates secure two-way over-the-horizon messaging, line-of-sight voice, near-real-time geopositioning, verification of evader identity and condition, low probability of intercept/low probability of detection, and, potentially, integration of commercial satellite system capabilities. The system is now being developed in an evolutionary fashion per the updated Operational Requirements Document approved in Feb 00: Block 1 will meet threshold requirements for Initial Operational Capability and Block 2 will add technical interoperability enhancements.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$10,807 CSEL Engineering and Manufacturing Development (U) \$40 Government Test and Operational Assessment (U) \$2,016 Other Government Support (U) \$12,863 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$7,780 CSEL Engineering and Manufacturing Development (U) \$390 Government Test and Operational Assessment (U) \$2,572 Other Government Support (U) \$10,742 Total</p> <p>The following net transactions are not reflected in the FY 2001 program total: SBIR=-\$65K and BTR=-\$603K. These transactions are not reflected in other sections of this document where an FY 2001 total is shown.</p>											
Project 4522			Page 1 of 5 Pages				Exhibit R-2 (PE 0305176F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																							
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator	PROJECT 4522																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$8,760 CSEL Engineering and Manufacturing Development</p> <p>(U) \$656 Government Test and Operational Assessment</p> <p>(U) \$2,070 Other Government Support</p> <p>(U) \$11,486 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Activity 5, Engineering and Manufacturing Development, because it is in engineering and manufacturing development and has not received full-rate production approval.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">13,212</td> <td style="text-align: right;">10,842</td> <td style="text-align: right;">3,471</td> <td style="text-align: right;">74,396</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">13,412</td> <td style="text-align: right;">10,842</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-110</td> <td style="text-align: right;">-76</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-487</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-144</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">244</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-52</td> <td style="text-align: right;">-24</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">8,015</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">12,863</td> <td style="text-align: right;">10,742</td> <td style="text-align: right;">11,486</td> <td style="text-align: right;">83,372</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> FY 2000: Below Threshold Reprogram to support radio development work FY 2002 and FY 2003: Adjustments to continue Block 2 development effort</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	13,212	10,842	3,471	74,396	(U) Appropriated Value	13,412	10,842			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-110	-76			b. Small Business Innovative Research	-487				c. Omnibus or Other Above Threshold Reprogram	-144				d. Below Threshold Reprogram	244				e. Rescissions	-52	-24			(U) Adjustments to Budget Years Since FY 2001 PBR			8,015		(U) Current Budget Submit/FY 2002 PBR	12,863	10,742	11,486	83,372
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Project 4522	Page 2 of 5 Pages	Exhibit R-2 (PE 0305176F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0305176F Combat Survivor Evader Locator				PROJECT 4522			
(U) D. Other Program Funding Summary (\$ in Thousands)												
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U) Other Procurement, Air Force - WSC 837170 (Budget Activity 3, P-64)	835	7,628	2,222	20,623	19,557	19,685	32,611	36,846	51,100	202,803		
Note: Army and Navy equipment is funded separately by those services.												
(U) E. Acquisition Strategy												
All major contracts within this Program Element will be awarded after full and open competition.												
(U) F. Schedule Profile												
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>		
				1	2	3	4	1	2	3	4	
(U) Engineering & Manufacturing Development				*	*	*	*	*	*	X	X	
(U) Government Developmental Testing								*	*			
(U) Operational Assessment								*				
(U) Low-Rate Initial Production (LRIP) Lot 1 Award										X		
(U) LRIP Lot 2 Award										X		
(U) LRIP Lot 1 First Unit Delivery										X		
(U) Government Developmental Testing									X	X		
(U) Multi-Service Operational Test & Evaluation											X	
* = completed event												
X = planned event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0305176F Combat Survivor Evader Locator			4522		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	CSEL Engineering and Manufacturing Development					10,807		7,780		8,760
(U)	Government Test and Operational Assessment					40		390		656
(U)	Other Government Support					2,016		2,572		2,070
(U)	Total					12,863		10,742		11,486
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Boeing	CPAF	23 Feb 96	62,266	62,266	33,918	10,807	7,780	8,760	1,001	62,266
SMC (COBRA)	Multiple	Multiple	4,000	4,000	4,000	0	0	0	0	4,000
<u>Support and Management Organizations</u>										
SPAWAR	MIPR	Multiple	N/A	N/A	615	232	832	387	0	2,066
PRC/ARINC	CPAF	Multiple	N/A	N/A	695	475	636	648	0	2,454
FFRDC (MITRE/Aerospace)	CPAF	Multiple	N/A	N/A	1,649	548	742	594	248	3,781
MANTECH	CPAF	Multiple	N/A	N/A	0	600	0	0	0	600
SMC	CPAF	Multiple	N/A	N/A	3,923	161	362	441	110	4,997
Miscellaneous	Multiple	Multiple	N/A	N/A	140	0	0	0	0	140
<u>Test and Evaluation Organizations</u>										
AFOTEC	CPAF	Multiple	N/A	N/A	200	0	0	0	0	200
746TS	CPAF	Multiple	N/A	N/A	1,286	0	0	0	0	1,286
SPAWAR	CPAF	Multiple	N/A	N/A	25	0	0	0	0	25
Joint Spectrum Center	CPAF	Multiple	N/A	N/A	134	0	110	0	0	244
ESC (TBMCS SPO)	CPAF	Multiple	N/A	N/A	0	0	50	50	50	150
EPG	MIPR	Multiple	N/A	N/A	90	40	190	456	0	776
Project 4522					Page 4 of 5 Pages	Exhibit R-3 (PE 0305176F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
05 - Engineering and Manufacturing Development					0305176F Combat Survivor Evader Locator				4522	
(U) Performing Organizations Continued:										
<u>Test and Evaluation Organizations</u>										
JITC	MIPR	Multiple	N/A	N/A	197	0	40	0	0	237
PMW-157 (GCCS-M)	MIPR	Multiple	N/A	N/A	0	0	0	150	0	150
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					37,918	10,807	7,780	8,760	1,001	66,266
Subtotal Support and Management					7,022	2,016	2,572	2,070	358	14,038
Subtotal Test and Evaluation					1,932	40	390	656	50	3,068
Total Project					46,872	12,863	10,742	11,486	1,409	83,372

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0401318F CV-22					PROJECT 4103	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4103	CV-22	0	0	10,008	11,477	16,023	8,474	5,049	5,054	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	0
<p>FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> The CV-22 is a Special Operations Forces (SOF) variant of the V-22 vertical lift, multi-mission aircraft. The CV-22 will provide critical capability to insert, extract, and resupply special operation forces into denied or sensitive territory, not currently provided by existing aircraft. This aircraft will be baselined upon the V-22 aircraft (MV-22 configuration) with added terrain following radar, fuel tanks, radios and flare/chaff dispensers, radar warning receiver and jammer, and infrared countermeasures (CV-22 Block 0 configuration). CV-22 production buys will begin in FY03. This RDT&E funding is required to develop mandated Global Air Navigation System/Global Air Traffic Management (GANS/GATM) capability into the CV-22. Without these improvements the aircraft will be unable to meet SECAF mandated navigation safety standards and SECDEF mandated air traffic standards and will have an adverse impact on USSOCOM's ability to perform its mission. Implementation of GANS/GATM capability into the CV-22 will be in conjunction with other improvements funded by USSOCOM in subsequent block upgrades. This RDT&E effort will design, engineer, and test the integration of CV-22-required GANS/GATM components, i.e. Traffic Collision Avoidance System (TCAS) and Voice and Data Recorder (VADR), to enable production incorporation in the third CV-22 production lot (FY05 buy).</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$700 Non-Recurring Engineering and System Integration of Global Air Navigation System/Global Air Traffic Management (GANS/GATM) equipment to ensure worldwide airspace access for the CV-22. (U) \$5,805 Engineering and design efforts to integrate Traffic Collision Avoidance System (TCAS) into the CV-22 (U) \$3,503 Engineering and design efforts to integrate Voice and Data Recorder (VADR) on the CV-22.</p>											
Project 4103			Page 1 of 4 Pages				Exhibit R-2 (PE 0401318F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																																																																																									
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05 - Engineering and Manufacturing Development	0401318F CV-22					4103																																																																																																																										
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$10,008 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Activity 5, Engineering and Manufacturing Development. The CV-22 Program is developing the first operational tilt-rotor aircraft for use by the Special Operations Forces.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:55%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">6,000</td> <td style="text-align: center;">6,000</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. 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Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td> </tr> <tr> <td>(U) AP,AF, PE 0401318F</td> <td style="text-align: center;">41,191</td> <td style="text-align: center;">131,969</td> <td style="text-align: center;">136,491</td> <td style="text-align: center;">414,489</td> <td style="text-align: center;">391,904</td> <td style="text-align: center;">392,704</td> <td style="text-align: center;">339,738</td> <td style="text-align: center;">313,584</td> <td style="text-align: center;">1,204,614</td> <td style="text-align: center;">3,326,005</td> </tr> <tr> <td>(U) AP,AF, Mods PE 0401318F</td> <td></td> <td></td> <td></td> <td style="text-align: center;">589</td> <td style="text-align: center;">591</td> <td style="text-align: center;">593</td> <td style="text-align: center;">24,656</td> <td style="text-align: center;">8,093</td> <td style="text-align: center;">75,201</td> <td style="text-align: center;">109,723</td> </tr> </tbody> </table>									<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	0	0	6,000	6,000	(U) Appropriated Value	0	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	4,008		(U) Current Budget Submit/FY 2002 PBR	0	0	10,008	TBD		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN											(U) AP,AF, PE 0401318F	41,191	131,969	136,491	414,489	391,904	392,704	339,738	313,584	1,204,614	3,326,005	(U) AP,AF, Mods PE 0401318F				589	591	593	24,656	8,093	75,201	109,723						
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Project 4103	Page 2 of 4 Pages					Exhibit R-2 (PE 0401318F)																																																																																																																										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001																																																																																																																																																
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0401318F CV-22					PROJECT 4103																																																																																																																																																
<p>(U) <u>E. Acquisition Strategy</u> All development for the V-22 program as a whole has been by the prime contractor, a consortium of the Bell and Boeing firms, selected as the sole source. The FY02 appropriation will be used primarily for the development of Global Air Navigation System/Global Air Traffic Management (GANS/GATM) and integration of selected components: Voice And Data Recorder (VADR) and Traffic Collision Avoidance System (TCAS).</p> <p>Subsequent to the FY02 program, the sole source consortium is utilized to conduct developmental block upgrade and remedial effort.</p>																																																																																																																																																										
<p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Commence CV-22 flight test</td> <td></td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) CV-22 Block 10 Award</td> <td></td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) Long-lead award for first CV-22 production</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) CV-22 Overarching IPT Review</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Award GANS/GATM NRE and System Integration contract</td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) Award TCAS contract</td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) Award VADR contract</td> <td></td> <td style="text-align: center;">X</td> <td></td> </tr> <tr> <td>(U) * = completed milestone</td> <td></td> </tr> <tr> <td>(U) X = planned milestone</td> <td></td> </tr> </tbody> </table>													<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Commence CV-22 flight test		*											(U) CV-22 Block 10 Award		*											(U) Long-lead award for first CV-22 production			*										(U) CV-22 Overarching IPT Review					*								(U) Award GANS/GATM NRE and System Integration contract											X		(U) Award TCAS contract											X		(U) Award VADR contract											X		(U) * = completed milestone													(U) X = planned milestone												
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Project 4103				Page 3 of 4 Pages				Exhibit R-2 (PE 0401318F)																																																																																																																																																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0401318F CV-22			PROJECT 4103			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Commercial vendor support for testing									0	
(U)	Commercial vendor engineering									10,008	
(U)	Government testing									0	
(U)	Government program management										
(U)	Total									10,008	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Block upgrade and correction of deficiencies - Bell Boeing							10,008		Continuing	TBD
<u>Support and Management Organizations</u>											
	Testing technical & logistics support - Bell Boeing									Continuing	TBD
	Management of testing OGC PO									Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	Air Force Operational Test & Evaluation Ctr.									Continuing	TBD
						<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Subtotals</u>										
	Subtotal Product Development								10,008	TBD	TBD
	Subtotal Support and Management									TBD	TBD
	Subtotal Test and Evaluation									TBD	TBD
	Total Project								10,008	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)						PROJECT 4887	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4887	Global Broadcast Service (GBS)	0	0	34,544	25,472	16,916	15,661	21,009	7,009	16,936	137,547
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

NOTE: Prior to FY02, GBS funding was contained in PE 63854F, BPAC 642679.
FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) A. Mission Description

NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

Global Broadcast Service will provide DoD with efficient, high data rate broadcast between many distributed information sources and warfighters who will receive the broadcast directly on small, inexpensive user terminals in accordance with the GBS Operational Requirements Document (ORD) validated by the Joint Requirements Oversight Council in Apr 1995. GBS Broadcast data includes digitized imagery, logistics and weather data, maps, operational orders, and video. GBS space segment includes packages on Navy operational satellites UFO 8, 9, and 10 providing near-worldwide service, augmentation by commercial leased Ku-band packages, and throughput on future Wideband Gapfiller satellites. GBS Broadcast Management and Terminal segments include uplink sites and receive equipment which integrate with Service fixed- and tactical-network equipment through standard commercial interfaces. Service production Receive Suite and integration into Service networks are funded in other PEs.

(U) FY 2000 (\$ in Thousands)

(U) \$0 Funded in PE 63854F

(U) \$0 Total

(U) FY 2001 (\$ in Thousands)

(U) \$0 Funded in PE 63854F

(U) \$0 Total

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																							
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)	PROJECT 4887																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$26,316 Continue System Development and Test</p> <p>(U) \$2,668 Continue Phase 2 Government System Integration</p> <p>(U) \$2,480 Continue Program Support</p> <p>(U) \$1,200 Continue Fielding Activities</p> <p>(U) \$1,880 Continue System Test & Evaluation Support</p> <p>(U) \$34,544 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>Funding is in budget activity 5, Engineering and Manufacturing Development, since program is fielding pre-production equipment.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">32,566</td> <td style="text-align: center;">135,569</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1,978</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">34,544</td> <td style="text-align: center;">137,547</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>The GBS Program has experienced several programmatic problems that resulted in a schedule breach from the Acquisition Program Baseline (APB) ground segment schedule outlined in the Dec 99 Selected Acquisition Report (SAR). A new program schedule baseline with incremental IOCs (Sep 01, Sep 02, and Sep 03) was approved in Jul 00. The rephasing includes moving to spiral development with system delivery in approximate 6 month increments beginning in Oct 00. Initial deployments will be to EUCOM.</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	0	0	32,566	135,569	(U) Appropriated Value	0	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	0	0			b. Small Business Innovative Research	0	0			c. Omnibus or Other Above Threshold Reprogram	0	0			d. Below Threshold Reprogram	0	0			e. Rescissions	0	0			(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	1,978		(U) Current Budget Submit/FY 2002 PBR	0	0	34,544	137,547
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Project 4887	Page 2 of 5 Pages	Exhibit R-2 (PE 0603840F)																																																							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0603840F Global Broadcast Service (GBS)			PROJECT 4887			
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
Note: All the Services and several DoD agencies have many programs which interface with or support GBS. Examples include: Define Information System Network (DISN); DISA Information Dissemination Management Program; ARPA Battlefield Awareness and Data Dissemination (BADD) Advanced Concept Tactical Demonstration (ACTD); ARPA-DISA Bosnia Command Control Augmentation (BC2A) Program including Joint Broadcast Service (JBS); Navy UFO Program; Army Ground Terminal Programs; Navy SATCOM Ship Terminal Program; and Air Force MILSATCOM Terminals (PE 33601): AF GBS Receive Terminals (BPAC 836780, line P-67, PE 33601, Milstar Satellite Comm Sys, Other Procurement; AF Ground Multiband Terminal (GMT) Development; and AF Wideband Terminal (AWT) Development.										
(U) E. Acquisition Strategy										
The acquisition strategy has been revised to a spiral development/incremental build approach using Integrated Product Development (IPD)/Integrated product Team (IPT) approach. Program will maintain a single integration contractor for the GBS Phase 2 system while incorporating cross program/system IPTs for total system performance.										
(U) F. Schedule Profile										
			<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
			1	2	3	4	1	2	3	4
(U) Previous effort performed under PE63854F										
(U) IOC 2										
(U) IOC 3 (4 Qtr FY 03)										
(U) Milestone III										
(U) Phase 3 (TBD)										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0603840F Global Broadcast Service (GBS)			4887		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Continue System Development and Test					0		0		26,316
(U)	Continue Phase 2 Government System Integration					0		0		2,668
(U)	Continue Program Support					0		0		2,480
(U)	Continue Fielding Activities					0		0		1,200
(U)	Continue System Test & Evaluation Support					0		0		1,880
(U)	Total					0		0		34,544
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Raytheon System Corp	CPAF	18 Nov 97	105,307	105,307	0	0	0	26,316	21,633	47,949
Phase 2 Government System Integration	Various	Various		22,332	0	0	0	2,668	3,097	5,765
<u>Support and Management Organizations</u>										
Program Support - Various		Various	N/A	N/A	0	0	0	2,480	6,803	9,283
Fielding - Various			N/A	N/A	0	0	0	1,200	2,400	3,600
Sustainment (Vendor TBD)			N/A	N/A	0	0	0	0	64,743	64,743
Navy Terminals			N/A	N/A	0	0	0	0	2,800	2,800
<u>Test and Evaluation Organizations</u>										
Various		Various	N/A	N/A	0	0	0	1,880	1,527	3,407

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
BUDGET ACTIVITY				PROJECT					
05 - Engineering and Manufacturing Development				0603840F Global Broadcast Service (GBS)			4887		
(U) <u>Government Furnished Property:</u> Contract Method/Type Award or or Funding Obligation Delivery Date Date				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
<u>Subtotals</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	0	0	28,984	24,730	53,714
Subtotal Support and Management				0	0	0	3,680	76,746	80,426
Subtotal Test and Evaluation				0	0	0	1,880	1,527	3,407
Total Project				0	0	0	34,544	103,003	137,547

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)					PROJECT 4789	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4789	Joint Helmet Mounted Cueing System (JHMCS)	16,711	1,300	5,960	1,957	1,012	3,090	3,157	3,228	0	36,415
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Prior to FY00 JHMCS was funded under PE 64201F (Integrated Avionics Planning and Development).

The FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) **A. Mission Description**
 This joint program with the Navy (Air Force is the lead service) will develop a helmet display system, capable of depicting aircraft heading data, pilot's viewing perspective, target indication graphics and digital information on the aircrew visor. Displaying this information allows the pilot to quickly align sensors and weapons on targets and engage threats using high off-boresight weapons such as the AIM-9X. A program restructure was approved in Dec 99 which extended the EMD contract to allow for redesign of the Helmet Interface Vehicle (HVI) cable to improve reliability, software upgrades to improve built-in test, and maturation of high off-boresight (HOBS) cueing capability with the AIM-9X. The restructure added a second LRIP in FY01 and delayed the Milestone III Production Decision from Sep 00 until Apr 02. Activities in FY02 include an Electronics Unit software update, helmet fit process improvements, regression testing, and preparation for Milestone III and full rate production. FY02 also includes study efforts to support night display and cueing with existing and future night vision goggles and definition of improved magnetic mapping processes to reduce the life cycle costs of mapping deployed aircraft.

(U) **FY 2000 (\$ in Thousands)**

(U) \$15,622	Continue JHMCS Engineering and Manufacturing Development (EMD) Contract
(U) \$588	Continue Air Force Flight Test Center (AFFTC) Test Support
(U) \$501	Continue Program Management Support
(U) \$16,711	Total

NOTE: Received \$9.874M FY00 Omnibus funding Nov 00 for planned support of EMD/Flight testing in FY00 and FY01 per the Dec 99 restructure.

The following net transactions are not reflected in the FY00 program total: BTR = -13K. These transactions are not reflected in other sections of the RDocs where an FY00 total is shown.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)	PROJECT 4789
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(U) **A. Mission Description Continued**

(U) FY 2001 (\$ in Thousands)

- (U) \$628 Continue JHMCS Engineering and Manufacturing Development (EMD) Contract.
- (U) \$672 Continue Program Management Support
- (U) \$1,300 Total

The following net transactions are not reflected in the FY01 program total: BTR = +184K, SBIR = -45K. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown.

(U) FY 2002 (\$ in Thousands)

- (U) \$5,492 Continue JHMCS Engineering and Manufacturing Development (EMD) Contract, to include night vision study efforts and P3I work.
- (U) \$468 Continue Program Management Support
- (U) \$5,960 Total

(U) **B. Budget Activity Justification**

This program is in budget activity 5 - EMD, Phase II, Research Category 6.4 because of the development nature of this program.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	2,970	1,312	2,926	26,396
(U) Appropriated Value	2,970	1,312		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-19	-9		
b. Small Business Innovative Research	-85			
c. Omnibus or Other Above Threshold Reprogram	9,874			
d. Below Threshold Reprogram	3,983			
e. Rescissions	-12	-3		
(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	3,034	
(U) Current Budget Submit/FY 2002 PBR	16,711	1,300	5,960	36,415

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)	PROJECT 4789
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(U) **C. Program Change Summary (\$ in Thousands) Continued**

(U) **Significant Program Changes:**

General:

The Air Force and Navy PEOs approved the JHMCS program restructure plan in Dec 99. The restructure extended the EMD contract to improve HVI reliability and mature HOBS performance, added a second LRIP in FY01, and delayed the MSIII decision until FY02. Production readiness in support of FRP will now occur in FY02. All HOBS cueing concerns were resolved during FY00. JHMCS now consistently provides HOBS cueing to the limits of the AIM-9X, and DT/OT pilots now rate performance as 'excellent'. The HVI was redesigned during FY00, successfully completed qualification testing, and is doing very well in tower testing. FY01 will also resolve the following R&M issues: canopy scratching, magnetic mapper ruggedness and open logistics documentation. The Navy PEO approved the program for LRIP in May 00 for the F/A-18E/F. Both PEOs approved the program for its second LRIP in May 01 to procure units for the F-15, F-16, and F/A-18E/F. The program was approved to start operational test and evaluation in Jun 01.

Funding:

The Dec 99 restructure required additional funding after the FY01PB. FY01 restructure funding requirements were covered with \$9.874M from the FY00 Omnibus Reprogramming, and an additional \$3.0M for FY02 was added in the FY02 President's Budget.

Schedule:

The following schedule milestones are based on the approved restructure: AFPEO/FB approved the program to enter LRIP 2 in May 01 and to start OT&E in Jun 01; LRIP 2 contract award 3QFY01; MSIII decision in 3QFY02 and Air Force RAA in 4QFY03.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>								
(U) RDT&E, BA 5, PE 0604201F, Integrated Avionics Planning and Development										45,151

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)	PROJECT 4789
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(U) E. Acquisition Strategy

JHMCS is an ACAT III joint USAF/USN program (USAF - executive service). The contract structure is a Cost Plus Award Fee (CPAF). The CPAF contract is through Boeing - St. Louis for integration into the F-15 and F/A-18 aircraft. All other aircraft integration will be handled by the respective platform Prime Contractor. Boeing has subcontracted to Vision Systems International (VSI) to provide JHMCS subsystems hardware/software. VSI is a partnership between Elbit (an Israeli company based in Ft Worth, TX) and Kaiser Electronics. The Joint Program Office is using a unique approach of developing common hardware as Government Furnished Equipment (GFE) to minimize platform integration risk. The results of this approach allows for substantial hardware commonality and 100% software commonality on all A/C. Furthermore lessons learned from one aircraft integration are directly transferable to all aircraft. The program received approval to restructure in FY00, extending the EMD contract to allow resolution of deficiencies including poor reliability of the HVI cable and software enhancements to improve high off boresight cueing. The restructure added a second LRIP in FY01 and delayed Milestone III from Sep 00 until Apr 02. The revised schedule better synchronizes JHMCS with the parallel developed AIM-9X missile.

(U) F. Schedule Profile

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				
	1	2	3	1	2	3	4	1	2	3	4
(U) LRIP 1 Production Decision (Navy PEO(T))			*								
(U) LRIP 1 Contract Award				*							
(U) LRIP 2 Production Decision (AFPEO/FB)						*					
(U) Air Force IOT&E - Starts						*					
(U) Navy OPEVAL - Starts							X				
(U) IOT&E/OPEVAL - Completes									X		
(U) Full Rate Production Decision (MSIII)											X
(U) F-15 RAA - 4th Qtr FY03											

X - Planned event
* - Completed event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604012F Joint Helmet Mounted Cueing System (JHMCS)			PROJECT 4789			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>	
(U)	Project Cost Categories										
(U)	EMD				15,622		628			5,492	
(U)	Flight Test Support (AFFTC)				588		0			0	
(U)	Program Management				501		672			468	
(U)	Total				16,711		1,300			5,960	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Boeing Company	CPAF	2/97	0	0	0	15,622	628	5,492	10,629	32,371
	<u>Support and Management Organizations</u>										
	Various	Various	2/97	0	0	0	501	672	468	1,815	3,456
	<u>Test and Evaluation Organizations</u>										
	Various	Various	2/97	0	0	0	588	0	0	0	588
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	<u>Support and Management Property</u>										
	<u>Test and Evaluation Property</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		
				June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development	0604012F Joint Helmet Mounted Cueing System (JHMCS)			4789		
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	0	15,622	628	5,492	10,629	32,371
Subtotal Support and Management	0	501	672	468	1,815	3,456
Subtotal Test and Evaluation	0	588	0	0	0	588
Total Project	0	16,711	1,300	5,960	12,444	36,415

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604201F Integrated Avionics Planning and Development					PROJECT 2257	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2257	Standard Avionics & JSRC Initiatives	675	0	0	0	0	0	0	0	0	18,931
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
FY 2001: PE 0604201F was zeroed out due to Appropriations Conference action.											
(U) <u>A. Mission Description</u> This project identifies, demonstrates and/or develops candidate architecture standards and open system modular components for the Air Force and other services. Maintains/updates the common avionics database as a widely used avionics interoperability/standardization planning tool. Supports international avionics initiatives and standardization activities such as Global Air Traffic Management (GATM) Integrated Product Team. Develops an opportunity matrix for tactical and airlift programs to identify opportunities to leverage investments for aging avionics, parts obsolescence and avionics modernization. Common Avionics Modernization Planning is a pre-EMD project that explores candidate avionics systems and designs for potential developmental efforts and aircraft interoperability initiatives. The Joint Service Review Committee (JSRC) coordinates avionics standardization projects between the Air Force, Army and Navy.											
(U) <u>FY 2000 (\$ in Thousands)</u>											
(U) \$100		Continue Avionics Planning Baseline									
(U) \$85		Continue Logistics/Initiative Planning and Support									
(U) \$239		High-Speed Open Architecture--BUS Protocol									
(U) \$251		Continue Program management Support									
(U) \$675		Total									
(U) <u>FY 2001 (\$ in Thousands)</u>											
(U) \$0		No Activity									
(U) \$0		Total									
FY2001: PE 0604201F was zeroed out due to Appropriations Conference action.											
(U) <u>FY 2002 (\$ in Thousands)</u>											
(U) \$0		No Activity									
(U) \$0		Total									
Project 2257											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604201F Integrated Avionics Planning and Development			PROJECT 2257				
(U) <u>B. Budget Activity Justification</u> This is budget activity - EMD, Research Category 6.4 because of the development nature of the effort.											
(U) <u>C. Program Change Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>					
(U)	Previous President's Budget (FY 2001 PBR)	712	712			19,680					
(U)	Appropriated Value	723	0								
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions	-6									
	b. Small Business Innovative Research	-21									
	c. Omnibus or Other Above Threshold Reprogram										
	d. Below Threshold Reprogram	-18									
	e. Rescissions	-3									
(U)	Adjustments to Budget Years Since FY 2001 PBR										
(U)	Current Budget Submit/FY 2002 PBR	675	0			18,931					
(U) <u>Significant Program Changes:</u> FY 2001: PE 0604201F was zeroed out due to Appropriations Conference action											
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable										
(U) <u>E. Acquisition Strategy</u> These projects are in acquisition development and are accomplished through various prime contractors. The contracts are level of effort and are awarded competitively and follow the most recent DoD acquisition guidelines using the integrated product development philosophy.											
(U) <u>F. Schedule Profile</u>											
		<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001					
BUDGET ACTIVITY	PE NUMBER AND TITLE						PROJECT					
05 - Engineering and Manufacturing Development	0604201F Integrated Avionics Planning and Development						2257					
(U) F. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Avionics Planning Baseline	*	*	*	*								
(U) Logistics/Initiative Planning	*	*	*	*								
(U) High-Speed Open Architecture--BUS Protocol	*	*	*	*								
(U) * = Completed event												
(U) X = Planned event												
Project 2257				Page 3 of 5 Pages				Exhibit R-2 (PE 0604201F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604201F Integrated Avionics Planning and Development				PROJECT 2257			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Avionics Planning Baseline					100					
(U)	Logistics / Initiative Planning and Support					85					
(U)	High-Speed Open Architecture--BUS Protocol					239					
(U)	Program Management Support					251					
(U)	Total					675					
FY 2001: PE 0604201F was zeroed out due to Appropriations Conference action.											
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Project EMD Contracts	Various	Annual 1 Oct	14,591	14,591	14,361	424			0	14,785
<u>Support and Management Organizations</u>											
	Program Mgmt Admin	Various	Annual 1 Oct	4,044	4,044	3,895	251			0	4,146
<u>Test and Evaluation Organizations</u>											
Not Applicable											
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
05 - Engineering and Manufacturing Development				June 2001					
BUDGET ACTIVITY				PROJECT					
05 - Engineering and Manufacturing Development				2257					
PE NUMBER AND TITLE									
0604201F Integrated Avionics Planning and Development									
(U) Government Furnished Property Continued:									
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Vehicle</u>		<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
Not Applicable									
<u>Support and Management Property</u>									
Not Applicable									
<u>Test and Evaluation Property</u>									
Not Applicable									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				14,361	424			0	14,785
Subtotal Support and Management				3,895	251			0	4,146
Subtotal Test and Evaluation									
Total Project				18,256	675			0	18,931

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	8,134	10,039	13,120	13,493	14,225	14,476	15,523	16,287	Continuing	TBD
4236 Engineering Analysis	1,236	1,226	2,134	2,120	2,139	2,169	2,690	2,998	Continuing	TBD
4807 Agent Defeat Weapons	2,750	3,928	5,485	5,588	6,088	6,087	6,340	6,539	Continuing	TBD
5708 Nuclear Weapons Support	4,148	4,885	5,501	5,785	5,998	6,220	6,493	6,750	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) **A. Mission Description**
 Provides funds for maintaining core USAF nuclear weapon system expertise. Includes in-house technical capabilities, contractual efforts, supplies and equipment, travel and salaries of the USAF Nuclear Weapons Product Support Center and the USAF Nuclear Weapons and Counterproliferation Agency civilian and military nuclear weapon and counterproliferation specialists at Kirtland Air Force Base. Provides technical and programmatic guidance for continued and improved weapons capability, interoperability, safety, surety, security, development, stockpile management and retirement, and counterproliferation assessments. Customers are: DoD (Air Force, Navy, Nuclear CINCs, Joint Staff, OSD and Defense Threat Reduction Agency [DTRA]), DOE and NATO. Supports US Strategic Command and Air Combat Command Required Operational Capability 16-71 (Peacekeeper), 12-76 (Air Launched Cruise Missile), 6-76 (B61 Strategic Bomb), 6-69 (B83 Modern Strategic Bomb), and SAC System Operational Requirements Document 13-82-III (Advanced Cruise Missile). Air Force representative for development and implementation of the Joint DoD-DOE Surety Plan, DOE Stockpile Stewardship Plan, DoD/DOE Long Range Planning Assessment and the DoD/DOE Annual Certification. These plans document nuclear weapon issues which benefit from the application of risk assessment, data collection, model development and effectiveness analysis. This work is tied to the DOE nuclear weapons development process independent of the DoD acquisition system. Weapons are continuously undergoing some form of RDT&E to assure safety, reliability and operational readiness as the DoD restructures the nation's nuclear stockpile. Therefore, USAF platforms require continuing engineering development and analysis to ensure compatibility and safety of nuclear systems. Counterproliferation efforts include identifying, evaluating and assessing current and projected counterproliferation systems operating in joint environments. Funding this element is essential to maintaining current safety and reliability levels in the US nuclear stockpile as well as assessing current and future USAF counterproliferation needs.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																									
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development		PE NUMBER AND TITLE 0604222F Nuclear Weapons Support																																																									
<p>(U) <u>B. Budget Activity Justification</u> The USAF Nuclear Weapons Product Support Center and the USAF Nuclear Weapons and Counterproliferation Agency are responsible for all USAF nuclear weapons program management, development, systems engineering, nuclear surety engineering, engineering analyses and weapons support procedure changes. These efforts place this project in RDT&E research category/budget activity 5, Engineering and Manufacturing Development.</p>																																																											
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">8,397</td> <td style="text-align: right;">10,133</td> <td style="text-align: right;">12,745</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">8,489</td> <td style="text-align: right;">10,133</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-54</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-241</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-3</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-24</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-33</td> <td style="text-align: right;">-94</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">375</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">8,134</td> <td style="text-align: right;">10,039</td> <td style="text-align: right;">13,120</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table>						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	8,397	10,133	12,745	TBD	(U) Appropriated Value	8,489	10,133			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-54				b. Small Business Innovative Research	-241				c. Omnibus or Other Above Threshold Reprogram	-3				d. Below Threshold Reprogram	-24				e. Rescissions	-33	-94			(U) Adjustments to Budget Years Since FY 2001 PBR			375		(U) Current Budget Submit/FY 2002 PBR	8,134	10,039	13,120	TBD
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<p>(U) <u>Significant Program Changes:</u> Change in FY 2002 reflects civilian pay and non-pay inflation.</p>																																																											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support					PROJECT 4236		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4236	Engineering Analysis	1,236	1,226	2,134	2,120	2,139	2,169	2,690	2,998	Continuing	TBD
FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.											
(U) <u>A. Mission Description</u> Funds the engineering analysis performed on contract for all USAF nuclear weapons, delivery systems and counterproliferation (CP) counterforce efforts. Contractors provide technical expertise unavailable through organic resources in critical areas of nuclear weapons safety and security, nuclear operations and counterproliferation.											
(U) <u>FY 2000 (\$ in Thousands)</u>											
(U)	\$95	Nuclear Aircraft System Support. Revised and verified nuclear weapons loading, delivery, warhead mate and demate technical orders; supported the US Strategic Command's nuclear safe escape effort; provided support on the nuclear hardness database; performed aircraft software analysis; calibrated the WE1841 Test Set; developed new test procedures for use with notebook computers; supported nuclear aircraft weapon system surveillance tests on the F-16 (Blocks 30/40/50), F-15E Suite 3 Rev 9, B-52H, and PA-200 aircraft; procured two used WE-1841 Test Sets to provide backup and spare parts; reconfigured and reprogrammed the new WE-1841 Test Sets to bring them up to the USAF configuration.									
(U)	\$811	Nuclear Weapons Program Support. Completed Nuclear Weapon Management System and associated Knowledge Base System design, upgrading and continuing to incorporate data; provided technical recommendations to update B61-11 Stockpile-to-Target Sequence (STS) document and supporting changes to the W80 and B61 Military Characteristics (MC); documented and supported 8 major nuclear warhead Project Officer Group meetings, Annual Certification Assessment and special studies to include B61-11 Mission Analysis Working Group meetings; conducted special studies on stockpile related matters; provided technical analysis and test support for life extension options for W80 Phase 6.2 study, ICBM START II contingency planning, B61 Common Radar and Trajectory Sensing Signal Generator flight testing and current W87 Life Extension Program (LEP).									
(U)	\$330	Counterproliferation Assessments. Provided continued technical support for counterproliferation assessments and technical expertise in the areas of nuclear, advanced technology and conventional systems identified as possible counterforce technologies; battle damage assessment platforms; and target intelligence platforms. Supported efforts in fuzing, mission planning, counterforce technologies and intelligence requirements for developing concepts of operations and operational requirements. Provided technical and programmatic support on counterproliferation matters to the Air Force Nuclear Weapons and Counterproliferation Agency (AFNWCA) and Headquarters USAF.									
(U)	\$1,236	Total									
Project 4236			Page 3 of 20 Pages				Exhibit R-2A (PE 0604222F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604222F Nuclear Weapons Support	PROJECT 4236
(U) A. Mission Description Continued		
(U) FY 2001 (\$ in Thousands)		
(U) \$100	Nuclear Aircraft System Support. Revise and verify nuclear weapons loading , delivery, warhead mate and demate, and EOD technical orders; provide EOD technical support to DoD/DOE agencies; provide support on the nuclear hardness database, perform aircraft software analysis; provide technical expertise for continued nuclear weapons integration of US and non-US aircraft systems; calibrate the WE1841 Surveillance Test Set and support the nuclear aircraft surveillance test program, provide B61 and B83 static ejection test support with new ejector cartridges; and provide logistic analysis as required.	
(U) \$830	Nuclear Weapons Program Support. Provide technical expertise to support development, fielding and updates of nuclear weapon MC and STS documents; document and support all weapons safety analyses, program actions, and agreements; update the Nuclear Weapon Management System and Knowledge Base System; conduct special studies on stockpile related matters; conduct development flight testing for weapon modification programs; provide technical analysis to support life extension options for B61 strategic systems, W80 Phase 6.3 Assessment, ongoing W87 LEP, inactive stockpile issues, use control, long term storage, and dismantlement issues to weapon Lead Project Officers.	
(U) \$296	Counterproliferation Assessments. Provide continued technical support for counterproliferation assessments and technical expertise in the areas of nuclear, advanced technology and conventional systems identified as possible counterforce technologies; battle damage assessment platforms; and target intelligence platforms. Support efforts in fuzing, mission planning, counterforce technologies and intelligence requirements for developing concepts of operations and operational requirements. Provide technical and programmatic support on counterproliferation matters to AFNWCA and Headquarters USAF.	
(U) \$1,226	Total The following net transactions are not reflected in the FY01 program total: BTR=-\$112K and SBIR=-\$331K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.	
(U) FY 2002 (\$ in Thousands)		
(U) \$105	Nuclear Aircraft System Support. Revise and verify nuclear weapons loading , delivery, warhead mate and demate, and EOD technical orders; provide EOD technical support to DoD/DOE agencies; provide support on the nuclear hardness database; perform aircraft software analysis; support the nuclear aircraft surveillance test program, provide technical expertise for continued nuclear weapons integration of US and non-US aircraft systems; and provide logistic analysis as required.	
(U) \$1,717	Nuclear Weapons Program Support. Provide technical expertise to support development, fielding and updates of nuclear weapon MC and STS documents; document and support all weapons safety analyses, program actions, and agreements; update the Nuclear Weapon Management System and Knowledge Base System; conduct special studies on stockpile related matters; conduct development flight testing for weapon modification programs to include B61 ALT 356; provide technical analysis to support life extension options for B83, B61, W80 and ICBM	
Project 4236	Page 4 of 20 Pages	Exhibit R-2A (PE 0604222F)

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
BUDGET ACTIVITY										PROJECT	
05 - Engineering and Manufacturing Development										4236	
PE NUMBER AND TITLE											
0604222F Nuclear Weapons Support											
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U)	Contractor Engineering Support					1,236	1,226		2,134		
(U)	Total					1,236	1,226		2,134		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	Miscellaneous	MIPR/FFP	2Q FY01	N/A	N/A		1,026	976	1,834	Continuing	TBD
	- Orion Intl, Albuquerque, NM										
	- ITT Systems, Colorado Springs, CO										
	- ANSER, Arlington, VA										
	- Albuquerque Logistics, Albuquerque, NM										
	<u>Support and Management Organizations</u>										
	<u>Test and Evaluation Organizations</u>										
	AFMC Test Centers	MIPR	1Q FY01				210	250	300	Continuing	TBD
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Property</u>										
	None										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
05 - Engineering and Manufacturing Development		June 2001				
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0604222F Nuclear Weapons Support			4236	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					<u>Program</u>
	Subtotal Product Development		1,026	976	1,834	TBD
	Subtotal Support and Management					
	Subtotal Test and Evaluation		210	250	300	TBD
	Total Project		1,236	1,226	2,134	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support					PROJECT 4807		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4807	Agent Defeat Weapons	2,750	3,928	5,485	5,588	6,088	6,087	6,340	6,539	Continuing	TBD
<p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) A. Mission Description Funds engineering analyses for the Agent Defeat Weapon (ADW) Phase 0, Concept Exploration, System Program Office documentation and Phase I, Program Definition and Risk Reduction activities (beginning in FY2002).</p> <p>(U) FY 2000 (\$ in Thousands)</p> <p>(U) \$1,800 Competed AoA Phase 0 analytical efforts to include: warhead effectiveness, concept weaponization, campaign assessments, incorporating Agent Release Model (ARM), Internal Dispersion and Venting (IDV) model, Empirical Lethality Model (ELM) and the Hot Effluent Rise Model (HER) into an integrated analytical code - Simulated Environment and Response Program Execution Nesting Tool (SERPENT); and initial Validation, Verification and Accreditation (VV&A) of the individual codes and models used during Phase 0 for incorporation in USAF/DoD target planning tools. Provided expanded campaign analyses to include Rules of Engagement, concept of operations and Blue-on-Red and Red-on-Blue assessments.</p> <p>(U) \$250 DoD pre-Phase I and/or DOE pre-Phase 1/2 Efforts. Provided pre-Milestone I research, development and assessments of conceptual designs, approaches, and/or parallel technologies of ADW prototypes identified during the Phase 0, Concept Exploration Phase.</p> <p>(U) \$700 Technical support for transitioning the ADW Phase 0 approved recommendations to the Phase I effort. Included initial development of the Operational Requirements Document (ORD); Test & Evaluation Master Plan (TEMP); Capstone Requirements Document (CRD); Command, Control, Computers, Communication and Intelligence Support Plan (C4ISP); and other required Milestone I documentation.</p> <p>(U) \$2,750 Total</p> <p>(U) FY 2001 (\$ in Thousands)</p> <p>(U) \$2,028 Perform Phase 0 Risk reduction efforts and analytical excursions to reduce technical risk and evaluate issues such as counterforce: policy of engagement, weapon-target analytical assumptions, campaign ROE's, concept of operations and input assumptions, intelligence uncertainties, collateral damage estimates and new alternative engineering uncertainties.</p> <p>(U) \$1,900 SPO Efforts. Standup of the ADW System Program Office (SPO) and activities for Milestone I decision and new program start. Includes mandatory documentation preparation and assessments to include: the Request for Proposal (RFP) - SPO, ORD - HQ ACC/SPO, TEMP - SPO, System Engineering Master Plan (SEMP)- SPO, System Threat Assessment (STA) - 497IG, C4ISP - 497IG, SPO High Fidelity Life Cycle Cost</p>											
Project 4807				Page 8 of 20 Pages				Exhibit R-2A (PE 0604222F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001		
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT		
05 - Engineering and Manufacturing Development					0604222F Nuclear Weapons Support					4807		
(U) E. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	End ADW Phase 0 AoA							X				
(U)	Begin ADW SPO Documentation			*								
(U)	End ADW SPO Documentation									X		
(U)	ADW Milestone I										X	
(U)	Begin ADW Phase I										X	
	* - Completed Event X - Planned Event											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 4807			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Hardware Development					725		1,550		3,270	
(U)	Software Development					1,000		1,350		1,050	
(U)	Program Management Support					800		800		1,050	
(U)	Miscellaneous					225		228		115	
(U)	Total					2,750		3,928		5,485	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Miscellaneous	MIPR/FFP	1Q FY00	N/A	N/A		2,450	3,628	4,585	Continuing	TBD
	- ITT Systems, Colorado Springs, CO										
	- Orion Int'l, Albuquerque, NM										
	- AAC/WMX, Eglin AFB, FL										
	- DOE National Labs										
	<u>Support and Management Organizations</u>										
	Orion Int'l, Albuquerque, NM	FFP	1Q FY00				300	300	900	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
(U) <u>Government Furnished Property:</u>											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
Project 4807											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 4807		
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					2,450	3,628	4,585	TBD	TBD
Subtotal Support and Management					300	300	900	TBD	TBD
Subtotal Test and Evaluation									
Total Project					2,750	3,928	5,485	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support					PROJECT 5708	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5708	Nuclear Weapons Support	4,148	4,885	5,501	5,785	5,998	6,220	6,493	6,750	Continuing	TBD
FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.											
(U) <u>A. Mission Description</u> Funds Air Force Nuclear Weapons Product Support Center (NWPSC) and the Air Force Nuclear Weapons & Counterproliferation Agency (AFNWCA) civilians at Kirtland AFB, New Mexico providing technical and engineering support for all USAF nuclear weapon systems and counterproliferation technical efforts.											
(U) <u>FY 2000 (\$ in Thousands)</u>											
(U)	\$1,160	Nuclear Aircraft System Support. Updated all fighter aircraft safe escape information for inclusion into the aircrew delivery manuals; provided technical advisors and the AFMC voting member for the B-52H USAF Nuclear Weapon System Safety Group (NWSSG) Operational Safety Review; provided technical support required by NWSSG action items; managed the F-15E, B-52H, F-16, PA-200, and B-2A Project Officers Groups (POGs); issued nuclear compatibility certification statement for F-16A/B/C/D, B-52H, B-2A, and F-15E/B61; conducted nuclear aircraft weapon system surveillance tests on the F-16 (Blocks 30/40/50), F-15E Suite 3 Rev 9, B-52H, and PA-200 aircraft; supported design, development, standardization and procurement of stores management systems for nuclear weapons command and control; provided support for test, development and compatibility engineering evaluation of nuclear aircraft systems ejector racks and ejector rack cartridges; provided design criteria and technical support for modification and development of Common Organization Level Tester (COLT) and Common O-Level Armament Support Tester (COAST) for aircraft nuclear weapon systems; provided revisions, changes and updates to nuclear weapon Technical Orders resulting from system and weapon hardware/software changes; chaired Technical Order review, validation/verification, and technical content conferences; and provided EOD technical support to DoD/DOE agencies.									
(U)	\$760	Nuclear Ground-Launched Missile (ICBM) Support. Provided nuclear surety design guidance to ICBM program office/contractors for weapon system modifications and upgrade programs, performed independent nuclear surety analyses for nuclear safety design certification of weapon system modifications, including Guidance Replacement Program Single-Chip Processor Configuration, Operational Ground Program (OGP) Revision, Simulated Electronic Launch (Minuteman) Equipment and Procedures, System Engineering Level Evaluation and Correction Team Equipment and Procedures, Propulsion Replacement Program Modified Flight Program Constants Tape and Minuteman Operational Targeting Program, Abbott Power Supply Replacement for Minuteman III Mk 12/12A Reentry System Test Set (RSTS) Energy Detector Power Supply, and Replacement Igniter Circuit Test Set; established nuclear safety requirements for PT4183 RF Subsystem Test Set; evaluated and recommended approval of Nuclear Surety Impact Statements for ICBM modifications; participated in Technical Interchange Meetings for baselining nuclear									
Project 5708		Page 13 of 20 Pages					Exhibit R-2A (PE 0604222F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	surety requirements for ICBM Launch Facility Remote Video Assessment; provided recommendation for Intent to Deploy Common Test Equipment Containing Integrated Processors and Recording Devices; conducted an independent Technical Nuclear Safety Analysis of Two-Person Control/guarding requirements the Airborne Launch Control System (ALCS) at dispersed locations; provided certification recommendation for E-6B Battlestaff Local Area Network Installation; and provided member to the ICBM Nuclear Surety and Unauthorized Launch Study Working Group.	
(U) \$727	Nuclear Weapons/Systems Assessments. Conducted safety assessment of W62 warhead maintenance operation at Malmstrom AFB, MT, chaired/managed the Safety Subgroup of the B61 Project Officers Group, supported lightning characterization efforts of the Protective Aircraft Shelters in USAFE, continued application of joint DoD/DOE nuclear surety assessment methodology to abnormal nuclear environment analyses; evaluated safety implications of modifications of the Kirtland Underground Munitions and Maintenance Storage Complex, conducted fault tree analyses of nuclear weapons and weapon systems; and provided technical advisors on nuclear weapon design and safety featured for the NWSSG Operational Safety Review (OSR) of the B-52H nuclear weapon system.	
(U) \$1,110	Nuclear Weapons Program Support. Continuing as the Nuclear Weapons Center of Expertise. Accomplished nuclear weapon safety, reliability, mission analysis and compatibility studies; supported USAF nuclear weapon stockpile activities including completion of B83 and B61 Common Radar testing, flight testing of B61 modifications and full certification of B61-11, Annual Certification Reports, weapon use control analyses, and environmental and intrinsic radiation studies; continued to develop, plan, analyze, schedule and execute nuclear weapon life extension programs for B61, B83, W80 and ICBM warheads including completion of W80 6.2 study; continued support to USAF, DoD, and other agencies on all issues affecting management of the nuclear weapons stockpile; supported validation and verification of the lightning protection tester for Protective Aircraft Shelter lightning characterizations in USAFE.	
(U) \$391	Counterproliferation Assessments. Provided technical guidance, analysis and support for the ADW Phase 0/I Study; provided overall program guidance and technical expertise in the evaluation of nuclear, conventional and advanced weapon technologies for CP programs; provided technical direction and support for current, proposed and future counterproliferation efforts of interest to the USAF.	
(U) \$4,148	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$1,303	Nuclear Aircraft System Support. Continue FY 2000 level of effort: support the US Strategic Command's nuclear safe escape effort; update/expand nuclear hardness database; conduct nuclear aircraft weapon system surveillance test programs; provide technical advisors and the AFMC voting member for the Prime Nuclear Airlift Forces (PNAF) and Strike Aircraft NWSSG Operational Safety Reviews; support design, development, standardization and procurement of stores management systems for nuclear weapons command and control; provide technical	
Project 5708	Page 14 of 20 Pages	Exhibit R-2A (PE 0604222F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
	support and independent technical nuclear safety analysis for certification of C-130J PNAF capability; continue support for certification of ejector rack cartridges, aircraft nuclear weapon test sets and support equipment and development of the common COLT/COAST test set; provide nuclear surety and compatibility design criteria, standards, specifications, and related requirements documents for all USAF nuclear capable aircraft weapon systems; manage the B-52H, F-15E, B-2A, F-16, and PA-200 POGs; perform independent engineering evaluations for nuclear safety design certification of aircraft nuclear weapon system modifications; chair Technical Order review, validation/verification, and technical content conferences; provide revision, changes, updates and publication/distribution to general nuclear weapons technical guidance supported through the Joint Nuclear Weapons Publication System (JNWPS); furnish specific guidance to MAJCOMs on Explosive Ordnance Disposal and issues affected by systems hardware/software changes; provide all nuclear-capable MAJCOMs with administrative/technical oversight and review of the Unsatisfactory Reporting (UR) system.	
(U) \$995	Nuclear Ground-Launched Missile (ICBM) Support. Continue FY 2000 level of effort: provide nuclear surety design criteria, standards, specifications, and related requirements documents for all USAF ground-launched missile systems; provide logistics sustainment support; provide nuclear surety design guidance to ICBM program office/contractors for weapon system modifications and upgrade programs, perform independent nuclear surety analyses for nuclear safety design certification of weapon system modifications; provide nuclear certification support to HQ AFSC/SEW and the ICBM SPO; provide technical support required by NWSSG action items; conduct an independent safety analysis to support additional NWSSG activities for Two-Person Control requirements the Airborne Launch Control System (ALCS) at disperse locations; support Peacekeeper Weapon System nuclear surety activities (either life extension programs or deactivation activities); and provide member to the ICBM Nuclear Surety Working Group, unauthorized launch studies, and special security working groups.	
(U) \$895	Nuclear Weapons/Systems Assessments. Continue FY 2000 level of effort: continue application of joint DoD/DOE nuclear surety assessment methodology to abnormal nuclear environment analyses; chair/manage the Safety Subgroup of the B61 Project Officers Group; conduct fault tree analyses of nuclear weapons and weapon systems; conduct safety assessment of warhead maintenance operation in USAF facilities; conduct an independent Technical Nuclear Safety Analysis of Nuclear Weapons Depot Maintenance and Storage Operations; evaluate safety implications of modifications of the Kirtland Underground Munitions and Maintenance Storage Complex; and provide other assessments as required.	
(U) \$1,140	Nuclear Weapons Program Support. Continue FY 2000 level of effort with strong emphasis as the Nuclear Weapons Center of Expertise. Accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support USAF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies; continue to develop, plan, analyze, schedule and execute nuclear weapon life extension programs for B61, B83, W80 and ICBM warheads including Phase 6.3 request for W80 program; and continue support to USAF, DoD and other agencies in all facets of the nuclear arsenal.	
(U) \$552	Counterproliferation Assessments. Continue FY 2000 level of effort: provide technical guidance, analysis and support for the ADW Phase I	
Project 5708	Page 15 of 20 Pages	Exhibit R-2A (PE 0604222F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604222F Nuclear Weapons Support	5708
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>	effort and counterproliferation (CP) related Intelligence, Surveillance & Reconnaissance (ISR) efforts; provide program guidance, analysis and expertise in the evaluation of nuclear, conventional and advanced weapon technologies and CP related ISR and Battle-Damage-Assessment (BDA) technologies.	
(U) \$4,885	Total	
	The following net transactions are not reflected in the FY01 program total: BTR=-\$112K and SBIR=-\$331K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$1,395	Nuclear Aircraft System Support. Continue FY 2001 level of effort: support the US Strategic Command's nuclear safe escape effort; update/expand nuclear hardness database; conduct nuclear aircraft weapon system surveillance test programs; provide technical support required by NWSSG action items; provide technical support for the B-52H and Long-term Storage OSRs and the NWSSG Special Safety Study for the C-130J aircraft; complete independent technical nuclear safety analysis for certification of the C-130J aircraft; continue support for certification of ejector rack cartridges, aircraft nuclear weapon test sets and support equipment, and development of the common COLT/COAST test set; provide nuclear surety and compatibility design criteria, standards, specifications, and related requirements documents for all USAF nuclear capable aircraft weapon systems; manage the B-52H, F-15E, B-2A, F-16, and PA-200 POGs; perform independent engineering evaluations for nuclear safety design certification of nuclear weapon system modifications and nuclear weapon compatibility certification; chair Technical Order review, validation/verification, and technical content conferences; provide revision, changes, updates and publication/distribution to general nuclear weapons technical guidance supported through the JNWPS; furnish specific guidance to MAJCOMs on Explosive Ordnance Disposal and issues affected by systems hardware/software changes; furnish all nuclear-capable MAJCOMs with administrative/technical oversight and review of the UR system.	
(U) \$1,120	Nuclear Ground-Launched Missile (ICBM) Support. Continue FY 2001 level of effort: provide nuclear surety design criteria, standards, specifications, and related requirements documents for all USAF ground-launched missile systems; provide nuclear surety design guidance to ICBM program office/contractors for weapon system modifications and upgrade programs, perform independent nuclear surety analyses for nuclear safety design certification of weapon system modifications; provide nuclear certification support to HQ AFSC/SEW and the ICBM SPO; provide technical support required by NWSSG action items; support Peacekeeper Weapon System nuclear surety activities (either life extension programs or deactivation activities); and provide member to the ICBM Nuclear Surety Working Group, unauthorized launch studies, and special security working groups.	
(U) \$930	Nuclear Weapons/Systems Assessments. Continue FY 2001 level of effort: continue application of joint DoD/DOE nuclear surety assessment	
Project 5708	Page 16 of 20 Pages	Exhibit R-2A (PE 0604222F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604222F Nuclear Weapons Support			5708				
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2002 (\$ in Thousands) Continued</u>											
			methodology to abnormal nuclear environment analyses; chair/manage the Safety Subgroup of the B61 Project Officers Group; conduct safety assessment of warhead maintenance operation in AF facilities; provide technical advisors and the AFMC voting member Nuclear Weapons Depot Maintenance and Storage Operations NWSSG Special Safety Study; conduct fault tree analyses of nuclear weapons and weapon systems; evaluate safety implications of modifications of the Kirtland Underground Munitions and Maintenance Storage Complex; and provide other assessments as required.								
(U)	\$1,339		Nuclear Weapons Program Support. Continue FY 2001 level of effort: accomplish nuclear weapon safety, reliability, mission analysis and compatibility studies; support USAF nuclear weapon stockpile activities, weapon use control analyses, and environmental and intrinsic radiation studies; continue to develop, plan, analyze, schedule and execute nuclear weapon life extension programs for B61, B83, W80 and ICBM warheads; and continue support to USAF, DoD and other agencies in all facets of the nuclear arsenal.								
(U)	\$717		Counterproliferation Assessments. Continue FY 2001 level of effort: provide technical guidance, analysis and support for the ADW Phase 0 effort and counterproliferation (CP) related Intelligence, Surveillance & Reconnaissance (ISR) efforts; provide program guidance, analysis and expertise in the evaluation of nuclear, conventional and advanced weapon technologies and CP related ISR and Battle-Damage-Assessment (BDA) technologies; lead DoD/DOE Phase 6.2/6.2A HDBT effort.								
(U)	\$5,501		Total								
(U) <u>B. Project Change Summary</u>											
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable										
(U) <u>D. Acquisition Strategy</u>											
RDT&E funds primarily provide for Air Force technical civilian personnel providing nuclear weapon and weapon system management and development and CP related nuclear, conventional, advanced weapon technology, ISR and BDA guidance, direction, analysis and development. These scientists and engineers interface with Headquarters USAF, Air Force nuclear weapon System Program Offices, operational commands and the Department of Energy, performing engineering development and analysis to ensure continued and improved weapon system safety, security, reliability and compatibility and managing/developing counterproliferation counterforce capabilities.											
Project 5708				Page 17 of 20 Pages				Exhibit R-2A (PE 0604222F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support					PROJECT 5708			
(U) E. Schedule Profile													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) B61 Vibration Fly-Around Tests	*	*											
(U) B61-11 Design Review and Acceptance Group (DRAAG)		*		*									
(U) B61 ALT 357 Phase 6.2 Study Start					*								
(U) B61 ALT 357 Phase 6.2 Study Complete											X		
(U) Complete W80 Life Extension 6.2 Study				*									
(U) W80 Life Extention Phase 6.3 Start					*								
(U) HDBT Phase 6.2 Study Start										X			
(U) Annual Certification			*				*				X		
(U) W87 Life Extension Program DRAAG					*								
* - Completed Event X - Planned Event													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 5708			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Program Management Personnel					245		250		255	
(U)	Research Personnel					2,950		3,220		3,350	
(U)	Travel					300		300		380	
(U)	Training Development					100		110		120	
(U)	Research Support Equipment Acquisition					200		200		200	
(U)	Contract Services Support					245		250		270	
(U)	Miscellaneous					108		555		926	
(U)	Total					4,148		4,885		5,501	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	AAC/WN (NWPSC)	N/A	N/A	N/A	N/A		2,483	2,985	3,245	Continuing	TBD
	AFNWCA	N/A	N/A	N/A	N/A		1,420	1,650	1,986	Continuing	TBD
<u>Support and Management Organizations</u>											
	GTE Govt Serv Corp, Needham Heights, MA	FFP	1Q FY01				245	250	270	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	None										
(U) <u>Government Furnished Property:</u>											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604222F Nuclear Weapons Support			PROJECT 5708		
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					3,903	4,635	5,231	TBD	TBD
Subtotal Support and Management					245	250	270	TBD	TBD
Subtotal Test and Evaluation									
Total Project					4,148	4,885	5,501	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604226F B-1B				PROJECT 4596		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4596	Conventional Mission Upgrades	155,668	156,671	194,507	95,299	78,753	17,250	0	0	0	1,648,348
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
FY03-FY07 budget numbers do not reflect the DoD strategic review results.											
<p>(U) <u>A. Mission Description</u></p> <p>(U) This Program Element provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). Funding in the FYDP includes integration of advanced conventional weapons including variants of the Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), Joint Stand-Off Weapon (JSOW), and Joint Air to Surface Stand-Off Missile (JASSM). Funding for upgrades to the Electronic Countermeasures (ECM) suite is also in the FYDP. Additional efforts include an upgrade to the avionics computers to enable simultaneous carriage of multiple weapon types, provide growth capability, and reduce support costs; development of the B-1B mission planning interface to the Air Force Mission Support System (AFMSS); and upgrades to the B-1B training systems to keep them current with the aircraft's configuration. The development efforts to improve the display of threat data and situational awareness (S/A) information to the aircrew; to design fixes that address near term reliability, maintainability, diminishing manufacturing sources (DMS), and performance deficiencies on selected line replaceable units (LRUs) of the ALQ-161A defensive system; to integrate replacement pilot station displays; and upgrade the diagnostics and power distribution subsystems to address reliability, maintainability and diminishing manufacturing sources are also included. Funding is also provided for preliminary engineering and planning studies for potential future weapon system enhancements (weapons, sensors, and avionics); and weapon system operational/safety, supportability, maintainability, reliability, and Total Ownership Cost (TOC) support improvements.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$121,496 Continued Conventional Mission Upgrade Program (CMUP) contractual efforts</p> <p>(U) \$678 Government Furnished Equipment (GFE)</p> <p>(U) \$22,906 Government flight test, Live Fire Test & Evaluation and General Test Support</p> <p>(U) \$4,685 Advisory and Assistance Services (A&AS)</p> <p>(U) \$2,871 Modeling & Simulation / Studies & Analyses</p> <p>(U) \$3,032 Program Management & Administration (PMA)</p> <p>(U) \$155,668 Total</p>											
Project 4596				Page 1 of 9 Pages				Exhibit R-2 (PE 0604226F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development		June 2001
PE NUMBER AND TITLE 0604226F B-1B		PROJECT 4596
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$107,211 Continued Conventional Mission Upgrade Program (CMUP) contractual efforts</p> <p>(U) \$453 Government Furnished Equipment (GFE)</p> <p>(U) \$37,588 Government flight test, Live Fire Test & Evaluation and General Test Support</p> <p>(U) \$4,943 Advisory and Assistance Services (A&AS)</p> <p>(U) \$2,950 Modeling & Simulation / Studies & Analyses</p> <p>(U) \$3,526 Program Management & Administration (PMA)</p> <p>(U) \$156,671 Total</p> <p>The following net transactions are not reflected in the FY01 program total: SBIR= (-\$5,230), and BTR= (-\$2,205). These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$150,671 Continued Conventional Mission Upgrade Program (CMUP) contractual efforts</p> <p>(U) \$332 Government Furnished Equipment (GFE)</p> <p>(U) \$33,462 Government flight test, Live Fire Test & Evaluation and General Test Support</p> <p>(U) \$4,631 Advisory and Assistance Services (A&AS)</p> <p>(U) \$1,200 Modeling & Simulation / Studies & Analyses</p> <p>(U) \$4,211 Program Management & Administration (PMA)</p> <p>(U) \$194,507 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>(U) The B-1 CMUP program is included in Budget Activity 5, Engineering and Manufacturing Development. The CMUP program provides new capabilities to the B-1B weapon system, including GPS, Near-Precision Weapons, enhanced computers and upgraded ECM. These capabilities require significant software development and testing.</p>		
Project 4596	Page 2 of 9 Pages	Exhibit R-2 (PE 0604226F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604226F B-1B			4596				
(U) C. Program Change Summary (\$ in Thousands)											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)			176,218	168,122	135,677		1,491,938			
(U)	Appropriated Value			178,544	158,122						
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions			-1,132	-1,107						
	b. Small Business Innovative Research			-5,098							
	c. Omnibus or Other Above Threshold Reprogram			-13,000							
	d. Below Threshold Reprogram			-2,623							
	e. Rescissions			-698	-344						
(U)	Adjustments to Budget Years Since FY 2001 PBR			-325		58,830		138,340			
(U)	Current Budget Submit/FY 2002 PBR			155,668	156,671	194,507		1,648,348			
(U) Significant Program Changes:											
(U) FY00: (-\$325) Adjustments for Cancelled Year bills, (-\$13,000) for Omnibus or Other Above Threshold Reprogramming, (-\$2,623) for BTR, (-\$698) for Rescissions, (-\$5,098) for SBIR, and (-\$1,132) for reductions.											
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	125,543	48,348	95,493	62,511	64,369	30,403	75,048	64,139	25,635	591,489
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	32,187	14,495	15,363	7,938	5,882	21,058	29,874	3,642	0	130,439
(U)	Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	0	1,900	20,598	1,818	1,914	1,916	1,955	1,997	0	32,098
(U)	Appn 10, PE 0101126F,	0	0	6,400	0	0	0	0	0	0	6,400
Project 4596											

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604226F B-1B			PROJECT 4596		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
B-1B, Aircraft Procurement										
BP13, Post Production										
Charges										
(U)	Appn 10, PE 0207442F,	0	0	0	0	0	0	0	0	0
B-1B, EW Production										
(TDS/IDECM) BP11, Mods										
(CMUP-related only)										
Related RDT&E:										
(U) Program Element 0205164F, Global Positioning System (GPS)										
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)										
(U) Program Element 0604618F/N, Joint Direct Attack Munition (JDAM)										
(U) Program Element 0604727F/N, Joint Stand-Off Weapon (JSOW)										
(U) Program Element 0604754F, Joint Tactical Information Distribution System (JTIDS)										
(U) Program Element 0604600F, Wind Corrected Munitions Dispenser (WCMD)										
(U) Program Element 0208006F, Air Force Mission Support System (AFMSS)										
(U) Program Element 0604270F, Electronic Warfare (EW) Development										
(U) E. Acquisition Strategy										
(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor; assignment of Total System Installed Performance Responsibility (TSIPR) to the integrating contractor; use of cost plus award fee (CPAF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.										
(U) F. Schedule Profile										
				<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604226F B-1B						PROJECT 4596		
(U) F. Schedule Profile Continued														
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				
	1	2	3	4	1	2	3	4	1	2	3	4		
(U)	Defensive System Upgrade Program													
(U)	T&E Milestones													
(U)	- Complete subsystem qual test													
(U)	- Flight Test Start													
(U)	Mission Planning System (MPS)													
(U)	T&E Milestones													
(U)	- S/W Release 1.2 (GPS/COM/JDAM OT&E Fixes) TRR/FQT													
(U)	- S/W Release 2.0 Test Readiness Review/FQT													
(U)	Contract Milestones													
(U)	- S/W Release 1.2 Delivery													
(U)	- S/W Release 2.01 Delivery													
(U)	Training Systems													
(U)	Acquisition Milestones													
(U)	- Start Computer/WST Rehost/WCMD EMD													
(U)	- Complete JDAM/GPS EMD													
(U)	Weapons													
(U)	Engineering Milestones													
(U)	- JSOW/JASSM CDR													
(U)	T&E Milestones													
(U)	- Start Computer/WCMD Flight Test													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604226F B-1B			PROJECT 4596			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U)	CMUP contractual efforts					121,496	107,211	150,671			
(U)	Government flight test					22,906	37,588	33,462			
(U)	Government Furnished Equipment					678	453	332			
(U)	Advisory and Assistance Services (A&AS)					4,685	4,943	4,631			
(U)	Modeling & Simulation / Studies & Analyses					2,871	2,950	1,200			
(U)	Program Management & Administration (PMA)					3,032	3,526	4,211			
(U)	Total					155,668	156,671	194,507			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
<u>Product Development Organizations</u>											
(U)	DSUP										
(U)	TBC	SS/CPAF	May 93	31,918	31,918	31,918	0	0	0	31,918	
(U)	TBC	SS/CPAF	June 97	303,729	303,729	144,639	47,132	46,388	42,388	23,182	303,729
(U)	Mission Planning System										
(U)	Lockheed-Sanders	C/CPAF	Aug 94	833	833	545	288	0	0	833	
(U)	Logicon	CPAF	Dec 95	51,664	51,664	39,080	8,048	3,883	653	0	51,664
(U)	Training Systems										
(U)	Lockheed-Martin	C/CPAF	Jun 94	13,284	13,284	13,284	0	0	0	0	13,284
(U)	Intelx	C/CPAF	Jun 99	38,541	38,541	6,559	11,989	9,069	4,024	6,900	38,541
(U)	Weapons										
(U)	TBC - CBU's	SS/CPFF	Mar 93	4,960	4,960	4,960	0	0	0	0	4,960
(U)	TBC - CBU's	SS/CPFF	Jan 94	16,314	16,314	16,314	0	0	0	0	16,314
(U)	TBC - FWEP	SS/T&M	Sep 98	3,866	3,866	3,275	591	0	0	0	3,866

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE June 2001	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
05 - Engineering and Manufacturing Development					0604226F B-1B					4596	
(U) <u>Performing Organizations Continued:</u>											
<u>Product Development Organizations</u>											
(U)	TBC - EFX	SS/T&M	Feb 98	5,727	5,727	5,727	0	0	0	0	5,727
(U)	TBC- JDAM/GPS	SS/CPFF	Aug 93	72,223	72,223	72,223	0	0	0	0	72,223
Pre-EMD											
(U)	TBD - 500 LB JDAM	TBD	Jan 03	69,521	69,521	0	0	0	0	69,521	69,521
(U)	TBD - ALQ-161	TBD	Jan 02	27,852	27,852	0	0	0	2,000	25,852	27,852
R&M/DMS											
(U)	TBD - S/A	TBD	Jan 02	5,356	5,356	0	0	0	2,950	2,406	5,356
Improvements											
(U)	TSAS/AVTR	TBD	Jan 02	2,800	2,800	0	0	0	2,800	0	2,800
Improvements											
(U)	TBD - VSD	TBD	Jan 02	10,100	10,100	0	0	0	10,100	0	10,100
Improvements											
(U)	TBD - CITS/EMUX	TBD	Jan 02	14,700	14,700	0	0	0	14,700	0	14,700
R&M/DMS											
(U)	TBD - IDARS R&M	TBD	Jan 02	1,000	1,000	0	0	0	1,000	0	1,000
Improvements											
(U)	TBC- JDAM/ GPS	SS/CPAF	Mar 95	272,404	272,404	272,404	0	0	0	0	272,404
EMD											
(U)	TBC-ACBM	SS/CPAF	Mar 98	1,900	1,900	1,900	0	0	0	0	1,900
(U)	TBC-Wing Sweep	SS/T&M	Jul 97	1,089	1,089	1,089	0	0	0	0	1,089
(U)	TBC- Computer	SS/CPAF	May 96/Jan 97	222,881	222,881	139,561	33,970	19,828	26,874	2,648	222,881
(U)	TBC-WCMD	SS/CPAF	May 96/Jan 97	66,560	66,560	33,829	11,143	8,163	11,843	1,582	66,560
(U)	Lockheed-Martin - WCMD	SS/CPAF	Jan 97	2,701	2,701	801	900	1,000	0	0	2,701
(U)	TBC- JSOW/ JASSM	SS/CPAF	Mar 99	74,272	74,272	9,619	5,165	15,043	28,968	15,477	74,272
(U)	Lockheed- Martin -	SS/T&M	Jan 99	13,042	13,042	6,822	1,299	2,677	1,871	373	13,042
Project 4596				Page 7 of 9 Pages				Exhibit R-3 (PE 0604226F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE	
BUDGET ACTIVITY										June 2001	
05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE					PROJECT	
					0604226F B-1B					4596	
(U) <u>Performing Organizations Continued:</u>											
<u>Product Development Organizations</u>											
JASSM											
(U)	Raytheon -JSOW	SS/T&M	Jan 99	4,253	4,253	1,350	970	1,160	500	273	4,253
(U)	TBD - Future CMUP	TBD	TBD	0	0	0	0	0	0	0	0
Related EMD											
<u>Support and Management Organizations</u>											
(U)	A&AS	Various	Annual	38,488	38,488	20,162	4,685	4,943	4,631	4,067	38,488
(U)	Studies & Analyses / Modeling & Sim	Various	Various	27,889	27,889	19,868	2,871	2,950	1,200	1,000	27,889
(U)	Program Mgmt & Admin	Various	Various	44,717	44,717	26,617	3,032	3,526	4,211	7,331	44,717
<u>Test and Evaluation Organizations</u>											
(U)	DSUP										
(U)	AFFTC	P.O.	Various	65,585	65,585	7,005	7,037	16,751	18,428	16,364	65,585
(U)	Weapons										
(U)	AFFTC	P.O.	Various	131,244	131,244	65,327	15,869	20,837	15,034	14,177	131,244
(U) <u>Government Furnished Property:</u>											
		<u>Contract</u>									
		<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Property</u>											
(U)	DSUP										
(U)	Various	Various	Various		3,769	300	300	300	150	4,819	
(U)	Weapons										
(U)	Various	Various	Various		1,553	378	153	32	0	2,116	
<u>Support and Management Property</u>											
<u>Test and Evaluation Property</u>											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT
05 - Engineering and Manufacturing Development			0604226F B-1B			4596
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>
			<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
					<u>Budget to</u>	<u>Total</u>
					<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development			811,221	122,173	107,664	151,003
Subtotal Support and Management			66,647	10,588	11,419	10,042
Subtotal Test and Evaluation			72,332	22,906	37,588	33,462
Total Project			950,200	155,667	156,671	194,507
					191,303	1,648,348

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)					PROJECT 4673	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4673	Distributed Mission Training (DMT)	3,469	3,748	0	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>Note 1: FY 02-FY07 funding transferred from PE 64227F, Distributed Mission Training, to PE 27701F, Full Combat Mission Training, to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program Termination.</p> <p>Note 2: FY03-FY07 budget numbers do not reflect the DOD strategic review results</p> <p>(U) <u>A. Mission Description</u> Distributed Mission Training (DMT) is revolutionizing aerospace team training by implementing a 'train the way we fight' philosophy -- as a team. The DMT program provides a shared synthetic environment of geographically separated aircraft simulators and will link real time to C3I assets and other battlefield systems in a synthetic battlefield environment. This will allow the Air Force to conduct mission rehearsal and combat mission training, which today can only be done to a limited extent because of constraints on flying hours, platform and airspace availability, as well as environmental constraints. DMT is funded principally with Operations and Maintenance funds. Engineering development efforts focus on development, demonstration, and transitioning of enhancements of critical functions associated with the DMT network and linked simulators. Areas of emphasis include development and demonstration of network architectures, common databases and database interfaces, improved simulator fidelity, and integration with constructive simulations for C3I. The ultimate objective of the program is for DMT to be able to conduct full joint and combined forces mission rehearsals.</p> <p>Note: FY 02-FY07 funding transferred from PE 64227F, Distributed Mission Training, to PE 27701F, Full Combat Mission Training, to consolidate accounts supporting Distributed Mission Training in to a single PE to provide for more effective program management and oversight. This is not a program Termination.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$1,493 Continued development, demonstration and insertion of common network standards, multilevel security and latency management approaches.</p> <p>(U) \$1,569 Continued development, demonstration and insertion of common environmental, terrain, and threat databases.</p> <p>(U) \$407 Continued development, demonstration and insertion of visual database interfaces to improve image-generation fidelity.</p> <p>(U) \$3,469 Total</p>											
Project 4673			Page 1 of 6 Pages				Exhibit R-2 (PE 0604227F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)	PROJECT 4673																																																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$1,092 Continued development, demonstration and insertion of multi-level security capability</p> <p>(U) \$1,328 Continued development, demonstration and insertion of DMT related technologies. Includes but not limited to common databases and improved image generation fidelity.</p> <p>(U) \$1,328 Continued Program office support</p> <p>(U) \$3,748 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR=-120K and SBIR=-31K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.'</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 No Activity</p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program element is included in Budget Activity 5 - Engineering and Manufacturing Development (EMD) as it supports development, demonstration and insertion of Distributed Mission Training applications.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right; width: 10%;"><u>FY 2000</u></th> <th style="text-align: right; width: 10%;"><u>FY 2001</u></th> <th style="text-align: right; width: 10%;"><u>FY 2002</u></th> <th style="text-align: right; width: 10%;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">3,835</td> <td style="text-align: right;">3,782</td> <td style="text-align: right;">0</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">3,835</td> <td style="text-align: right;">3,782</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-43</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-23</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-300</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td style="text-align: right;">-34</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	3,835	3,782	0	TBD	(U) Appropriated Value	3,835	3,782			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-43				b. Small Business Innovative Research	-23				c. Omnibus or Other Above Threshold Reprogram	-300				d. Below Threshold Reprogram					e. Rescissions		-34			(U) Adjustments to Budget Years Since FY 2001 PBR				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																
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Project 4673	Page 2 of 6 Pages	Exhibit R-2 (PE 0604227F)																																																		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)			PROJECT 4673				
(U) C. Program Change Summary (\$ in Thousands) Continued											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>						
(U)	Current Budget Submit/FY 2002 PBR	3,469	3,748	0	TBD						
(U)	<u>Significant Program Changes:</u> Not Applicable										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		
(U)	PE 0207130F, F-15 Squadrons Appropriation: O&M, AF	38,549	27,593	0	0	0	0	0	0	Continuing	TBD
(U)	PE 0207417F, AWACS Squadron	174	3,696	0	0	0	0	0	0	Continuing	TBD
(U)	Appropriation: O&M, AF (U) PE 0207133F, O&M, F-16 Squadron	11,704	18,205	0	0	0	0	0	0	Continuing	TBD
Note: FY 02 - FY 07 funding transferred to PE 27701F, Full Combat Mission Training, to consolidate accounts supporting Distributed Mission Training into a single PE to provide for more effective program management and oversight. This is not a program Termination.											
(U) E. Acquisition Strategy											
An innovative acquisition strategy is being employed for some weapon systems in conjunction with DMT. Termed Commercial Training Simulation Service (CTSS), this strategy differs significantly from previous AF simulator procurements. It shifts from government procured simulators to a contractor-provided service. The contractor owns and provides the simulator equipment, maintains simulator concurrency with the weapons system, and has incentives to keep his equipment abreast with the latest simulator and network technologies. CTSS contracts are currently in place for F-15C, F-16, AWACS, and Operations and Integration .											
(U) F. Schedule Profile											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)					PROJECT 4673		
(U) <u>F. Schedule Profile Continued</u>												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	DMT Operations & Integration begin											
(U)	AWACS ops begin :Tinker AFB, OK											
(U)	F-16 Four Ship Operations begin: Shaw AFB											
(U)	F-16 Single Ship Operations begin: MT Home											
		*				X					X	
											X	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604227F Distributed Mission Training (DMT)			PROJECT 4673		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U)	DMT Network Architecture Development				1,493	0				
(U)	Common database and interface integration				1,569	0				
(U)	Demonstration of improved simulator/network fidelity				407	200				
(U)	Multi-level Security				0	1,092				0
(U)	Develop,demonstrate,insert DMT Technology				0	1,136				0
(U)	Support and management				0	1,320				0
(U)	Total				3,469	3,748				0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Training Systems Product Group	CPAF/FPAT development)	Aug 99			0	2,315	2,420	0	Continuing	TBD
	FFP/FPAT (for operations)									
<u>Support and Management Organizations</u>										
Training Systems Product Group			N/A	N/A	0	834	1,328	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Training Systems Product Group	CPAF/FPAT	Aug 99	TBD	TBD	0	320	0	0	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE June 2001		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0604227F Distributed Mission Training (DMT)			4673	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		0	2,315	2,420	0	TBD
Subtotal Support and Management		0	834	1,328	0	TBD
Subtotal Test and Evaluation		0	320	0	0	TBD
Total Project		0	3,469	3,748	0	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604233F Specialized Undergraduate Pilot Training

COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	43,638	23,634	4,885	1,977	2,016	2,060	0	0	0	345,749
4102 Joint Primary Aircraft Training System (JPATS)	36,372	21,473	1,885	1,977	2,016	2,060	0	0	0	262,154
4376 T-38 Avionics Upgrade Program (AUP)	7,266	2,161	3,000	0	0	0	0	0	0	83,595
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	8

Note: The cost of the RDT&E test articles shown above includes the JPATS test aircraft (T-1) funded with FY95 through FY00 funds and Ground Based Training System (GBTS) Aircrew Training Devices (ATD), conversion software, and Training Integration Management System (TIMS) components funded with FY97 through FY01 funds (\$161,571 thousand total). It also includes two T-38C (AUP equipped) test aircraft and two ATDs (\$37,693 thousand total).

Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) A. Mission Description

Supports Air Education and Training Command's (AETC) implementation of Specialized Undergraduate Pilot Training (SUPT) and the Department of Defense initiative for joint pilot training. The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34 respectively) and associated Ground Based Training Systems (GBTS). The Air Force is the Executive Service. The T-38 AUP is an integrated modernization of the T-38A and AT-38B cockpits to support mission ready fighter and bomber training. T-38 FY2002 funding is for software block updates driven by FAA-mandated changes, National Aerospace System (NAS) requirements, and enhancements identified during test and evaluation. Additionally, there are funds in this project for Phase I testing of propulsion enhancements for the T-38 aircraft and to update T-38 flight performance models, Technical Orders, and AUP software for both aircraft and Aircrew Training Devices for changes brought about by the T-38 Propulsion Modernization Program (PMP).

(U) B. Budget Activity Justification

This program element is in Budget Activity 5, Engineering and Manufacturing Development (EMD) because it primarily involves the missionization of commercial derivative aircraft, equipment, and components.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		DATE			
05 - Engineering and Manufacturing Development		June 2001			
PE NUMBER AND TITLE					
0604233F Specialized Undergraduate Pilot Training					
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	40,805	23,853	1,883	339,800
(U)	Appropriated Value	41,156	23,853		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-74			
	b. Small Business Innovative Research	-1,155			
	c. Omnibus or Other Above Threshold Reprogram	-1,103			
	d. Below Threshold Reprogram	4,975			
	e. Rescissions	-161	-219		
(U)	Adjustments to Budget Years Since FY 2001 PBR			3,002	5,949
(U)	Current Budget Submit/FY 2002 PBR	43,638	23,634	4,885	345,749
(U)	<u>Significant Program Changes:</u>				
	FY2000 includes reprogrammings to JPATS that are repayment for FY1998 and FY1999 reductions used as Omnibus sources. FY2000 includes reprogrammings to the T-38 AUP to correct deficiencies found during Developmental Test and Evaluation (DT&E). FY2002 funding was added for T-38 AUP software block updates. FY2002 and out change due to revised inflation assumptions.				
	The following net transactions are not reflected in the FY01 program total: BTR = +\$3,100K, and SBIR = -\$366 K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training					PROJECT 4102
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4102 Joint Primary Aircraft Training System (JPATS)	36,372	21,473	1,885	1,977	2,016	2,060	0	0	0	262,154
<p>Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> The Joint Primary Aircraft Training System (JPATS) is a joint USAF/USN venture to replace the Services' fleets of primary trainer aircraft (T-37 and T-34, respectively) and associated Ground Based Training Systems (GBTS). The aircraft and GBTS will be used to train entry-level student aviators in the fundamentals of flying so they can transition into advanced training tracks leading to qualification as military pilots, navigators, and naval flight officers. The program includes the purchase of aircraft, simulators, and other associated ground-based training devices, Training Integration Management System (TIMS), instructional courseware, and logistics support.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$2,205 Complete air vehicle related items for data, completion of Aircraft Structural Integrity Program (ASIP), and Technical Manuals (U) \$32,942 Continue GBTS management and development of TIMS, ATDs, and Administration and Conversion Courseware (U) \$1,225 Mission Support and Government Test (U) \$36,372 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$2,619 Incorporate changes to air vehicle as a result of test findings (U) \$18,288 Complete GBTS development (U) \$566 Mission Support and Government Test (U) \$21,473 Total</p> <p>Note: The following transactions are not reflected in the FY01 program total: BTR = +\$3,100K and SBIR = -\$333K. These transactions are not reflected in other sections of the R-Docs where and FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$1,885 Redetermination and settlement of MD contract. (U) \$1,885 Total</p> <p>(U) <u>B. Project Change Summary</u> FY2002 and beyond adjusted for revised inflation assumptions.</p>										
Project 4102			Page 3 of 11 Pages				Exhibit R-2A (PE 0604233F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training				PROJECT 4102	
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E	36,372	21,473	1,885	1,977	2,016	2,060	0	0	0	262,154
(U) Other APPN										
(U) Aircraft Procurement, Air Force, BA-3										
(U) JPATS	107,386	131,512	228,209	202,356	218,894	227,690	253,796	254,595	336,200	2,298,738
(U) JPATS, BA-6	0	0	0	61,357	23,830	24,582	25,464	26,303	30,500	192,036
(U) JPATS Mod Funding	0	0	200	0	0	0	0	0	0	200
(U) Military Construction, Air Force										
(U) PE 0804741F, JPATS	3,200	0	0	7,500	0	0	3,000	0	0	19,500
(U) RDT&E, Navy, BA-7										
(U) PE 0603208N, Training System Aircraft, H1150, JPATS	311	0	0	0	0	0	0	0	0	11,581
(U) Aircraft Procurement, Navy, BA-3										
(U) JPATS	55,355	80,625	0	0	0	0	0	45,771	1,709,249	1,891,000
(U) APN 6 Spares	0	0	0	0	0	0	0	6,349	124,900	131,249
(U) Military Construction, Navy	5,400	1,500	4,100	2,000	0	11,000	13,900	0	6,200	46,900
(U) D. Acquisition Strategy										
Each acquisition was competitively awarded with the intent of maximizing the use of commercially available equipment and best commercial practices. The JPATS Program competitively awarded two contracts: a Firm Fixed Price Contractor Logistics Support (CLS) contract and a Fixed Price Incentive Firm manufacturing development (MD)/production contract with seven options. The follow-on contract for both the air vehicle and GBTS will be Firm Fixed Price.										
(U) E. Schedule Profile										
				<u>FY 2000</u>				<u>FY 2001</u>		<u>FY 2002</u>

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
05 - Engineering and Manufacturing Development					0604233F Specialized Undergraduate Pilot Training					4102				
(U) E. Schedule Profile Continued														
		<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
(U) First Production Aircraft Delivery		*												
(U) Begin Multi-Service OT&E			*											
(U) Multi-Service OT&E Complete					*									
(U) Planning for Rate Review						*								
(U) TIMS, ATD, Courseware Delivery to Randolph AFB TX						*								
(U) Begin System Level Formative Evaluation (SLFE)						*								
(U) Complete SLFE							*							
(U) Milestone III									X					
(U) IOC Air Force (Moody AFB)									X					
(U) Begin System-Level Multi-Service OT&E									X					
(U) Training Integration Management System (TIMS) IOC - Laughlin AFB									X					
(U) TIMS IOC - Columbus AFB										X				
(U) Complete System-level Multi-Service OT&E											X			
* Denotes completed milestone														
X Denotes planned milestone														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604233F Specialized Undergraduate Pilot Training			4102		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Aircraft Missionization/Test and Evaluation				2,527		2,847			0
(U)	Ground Based Training System (GBTS)				32,942		18,288			0
(U)	Other Government Costs (OGC)				903		338			1,885
(U)	Total				36,372		21,473			1,885
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Raytheon Aircraft Company (RAC)	C/FPI	5 Feb 96	220,296	220,296	108,230	2,205	2,619	0	0	113,054
Flight Safety Services Corp.	N/A**	26 Sep 97	N/A	N/A	56,012	32,942	18,288	0	0	107,242
* RAC contract Total Program includes contract value, 'to ceiling,' Engineering Change Order (ECO), and Award Fee										
** Subcontract to RAC										
*** RAC EAC includes subcontracted GBTS effort, which is not individually reported										
<u>Support and Management Organizations</u>										
Various	Various	Various	N/A	N/A	32,129	1,225	566	1,885	6,053	41,858
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>										
Subtotal Product Development					164,242	35,147	20,907	0	0	220,296
Subtotal Support and Management					32,129	1,225	566	1,885	6,053	41,858
Subtotal Test and Evaluation										
Total Project					196,371	36,372	21,473	1,885	6,053	262,154

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training						PROJECT 4376	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4376	T-38 Avionics Upgrade Program (AUP)	7,266	2,161	3,000	0	0	0	0	0	0	83,595
Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.											
(U) <u>A. Mission Description</u> The T-38 Avionics Upgrade Program (AUP) is an integrated modernization of the T-38A and AT-38B cockpits to support mission-ready fighter training and converts all T-38A and AT-38B aircraft to T-38C configuration. The modernized digital cockpit will include Global Positioning System (GPS), Head-Up Display (HUD), Inertial Navigation System (INS), Multi-Function Displays (MFDs), Up-Front Control Panel (UFCP), Data Transfer System (DTS), No-Drop Bombing System (NDBS), and Hands-On Throttle and Stick (HOTAS) switchology. HUD symbology will be the new USAF standard recently certified as a primary flight reference. Also included is the acquisition of two types of Aircrew Training Devices (ATDs) to replace the existing T-51 simulators. The program includes the design, integration, test, and installation of the cockpit prototype in aircraft, ATDs, and other training devices, as well as engineering services, studies, analysis and support to determine the feasibility of incorporating changes for purposes of making informed life-cycle cost business decisions. Additionally, funds are included in FY2000 and FY2001 for Phase I testing of engine operability/suitability for the T-38 Propulsion Modernization Program (PMP) and to update T-38 flight performance models, Technical Orders, and AUP software for changes brought about by the T-38 PMP. FY2002 funding is for AUP block software updates driven by FAA-mandated changes; National Aerospace System (NAS) requirements such as Global Air Traffic Management (GATM), Joint Precision Approach and Landing System (JPALS), GPS, GPS Embedded Module (GEM) issues (Selective Availability Anti-Spoofing Module (SAASM), precision and GPS approaches); enhancements identified during Development Testing, Operational Testing and Force Development Evaluation (FDE), and AETC operations such as scratch pad, improvements to UFCP, HUD, Built In Test (BIT), mechanization of menus/modes and mission planning/debriefing system, ATD HUD projectors, and Computer Aided Module (CAM) operations.											
(U) <u>FY 2000 (\$ in Thousands)</u>											
(U)	\$4,140	Complete ATD testing and ATD delivery; complete maintenance and ground support equipment; deliver final technical orders and drawings; complete Build 5 and 6 hardware and software upgrade and Phase II DT&E and IOT&E									
(U)	\$738	Conduct Phase I testing and analysis of the integrated ejector/inlet portion of T-38 PMP									
(U)	\$854	Conduct Government PMP flight test									
(U)	\$676	Complete Government AUP Phase II flight test									
(U)	\$858	Other Government Costs									
(U)	\$7,266	Total									
Project 4376			Page 7 of 11 Pages				Exhibit R-2A (PE 0604233F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604233F Specialized Undergraduate Pilot Training				PROJECT 4376			
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2001 (\$ in Thousands)</u>											
(U)	\$1,911	Update T-38 flight performance models, Technical Orders, and AUP aircraft and Aircrew Training Device (ATD) software for changes brought about by the T-38 PMP									
(U)	\$250	Other Government Costs									
(U)	\$2,161	Total									
Note: The following net transaction is not reflected in the FY01 program total: SBIR = -\$33K. This transaction is not reflected in other sections of the R-docs where an FY01 total is shown.											
(U) <u>FY 2002 (\$ in Thousands)</u>											
(U)	\$2,500	Develop and test Block 3 and define Block X T-38C AUP aircraft and ATD software for requirements driven by FAA/NAS mandates and identified during Test and Evaluation and by AETC operations									
(U)	\$500	Other government cost and test									
(U)	\$3,000	Total									
(U) <u>B. Project Change Summary</u>											
Funds reprogrammed to FY2000 to correct deficiencies discovered during Developmental Test and Evaluation (DT&E). Additional funds were required in FY2000 to complete Phase II of IOT&E and obtain a Full Rate Production (FRP) decision. FY2002 funds added for AUP software block updates.											
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E	7,266	2,161	3,000	0	0	0	0	0	0	83,595
(U)	Other APPN										
(U)	PE 0804741F, T-38 Avionics Upgrade, BP 1100	32,209	80,268	75,839	99,290	99,505	55,600	53,370	41,890	43,291	598,585
(U)	PE 0804741F, T-38 Avionics Upgrade, Initial Spares	2,400	0	1,264	2,200	3,800	1,000	0	0	0	11,796
(U)	PE 0804741F, Propulsion Modification, BP 1100	0	30,914	59,109	66,089	68,797	65,666	69,291	72,312	318,613	750,691
(U)	PE 0804741F, Propulsion	0	5,100	4,499	5,017	4,939	4,978	5,504	5,613	22,608	58,258
Project 4376										Page 8 of 11 Pages	
										Exhibit R-2A (PE 0604233F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604233F Specialized Undergraduate Pilot Training

PROJECT
4376

(U) C. Other Program Funding Summary (\$ in Thousands)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
Engine Modification, Initial Spares										

(U) D. Acquisition Strategy

The T-38 AUP competitively awarded three contracts to a single prime: a) a cost plus award fee EMD contract with six firm fixed price production options; b) a firm fixed price CLS contract for avionics including Contractor Owned and Maintained Base Supply (COMBS); and c) a fixed price award fee maintenance contract for the current and new Aircrew Training Devices (ATDs). The T-38 PMP will be comprised of four contractual efforts: a. J85-5 engine modification and ejector nozzle will be sole source additions to a current contract with General Electric, b. the inlet/former/bulkhead kits will be a competitive award; c. a task order will be established on the existing Contractor Field Team (CFT) contract for kit installation; and d. the T-38 software changes required by the PMP will be added to the existing Boeing contract for the AUP. FY2002 software block updates will be changes to existing contracts.

(U) E. Schedule Profile

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) First Production ATD Delivered			*									
(U) Phase I Testing of PMP Complete				*								
(U) First Production Aircraft Delivered						*						
(U) Final Functional Configuration Audit (FCA)						*						
(U) IOT&E Phase II Complete						*						
(U) Full Rate Production Decision						*						
(U) Initial Operational Capability (IOC)									X			
(U) Initiate Software Block 3 on AUP										X		
(U) Initiate Development Test/FDE 1st Qtr FY03												
(U) Field Block 3 2nd Qtr FY03												

* Denotes completed milestone
X Denotes planned milestone

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604233F Specialized Undergraduate Pilot Training			4376		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Avionics System Upgrade					2,091		0		0
(U)	Aircrew Training Devices					1,629		0		0
(U)	System Engineering/Program Management					420		0		0
(U)	Other Government Costs and test					1,495		250		500
(U)	Propulsion Modernization Program					1,631		1,911		0
(U)	Block 3 Software Update					0		0		2,500
(U)	Total					7,266		2,161		3,000
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
The Boeing Corporation	C/CPAF	31 Jul 96	65,585	65,585	59,514	4,140	1,911	2,500	0	68,065
St. Louis MO										
ASC/YT WPAFB OH	Various	Annual	N/A	N/A	9,129	472	50	60	0	9,711
GE, Lynn MA	CPFF	Jan 00	750	750	0	738	0	0	0	738
ASC/LP, WPAFB OH	Various	Annual	N/A	N/A	0	39	0	0	0	39
<u>Support and Management Organizations</u>										
SA-ALC/LF Kelly AFB TX	Various	Quarterly	N/A	N/A	141	53	0	0	0	194
AETC Randolph AFB TX	Various	Quarterly	N/A	N/A	102	48	50	125	0	325
OO-ALC/LIR Ogden AFB UT	Various	Quarterly	N/A	N/A	245	100	0	15	0	360
<u>Test and Evaluation Organizations</u>										
445 FLTS Edwards AFB CA	PO	Annual	N/A	N/A	1,852	1,530	0	300	0	3,682
AFOTEC Kirtland AFB NM	PO	Annual	N/A	N/A	185	146	150	0	0	481

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0604233F Specialized Undergraduate Pilot Training			4376	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development		68,643	5,389	1,961	2,560	0
Subtotal Support and Management		488	201	50	140	0
Subtotal Test and Evaluation		2,037	1,676	150	300	0
Total Project		71,168	7,266	2,161	3,000	0
						83,595

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604239F F-22 EMD						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2,239,065	1,398,835	865,464	320,525	0	0	0	0	0	24,215,651
4069 Advanced Tactical Fighter FSD	1,517,936	998,503	716,594	320,525	0	0	0	0	0	22,945,320
4874 PRTVII Aircraft Acquisition	721,129	400,332	148,870	0	0	0	0	0	0	1,270,331
Quantity of RDT&E Articles	1	4	6	2	0	0	0	0	0	0
The FY03-FY07 budget numbers do not reflect DoD's strategic review results.										
(U) A. Mission Description										
The F-22 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets. The F-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance that allows supersonic cruise without the use of afterburner. The F-22 is currently in the Engineering and Manufacturing Development (EMD) phase of acquisition.										
(U) B. Budget Activity Justification										
This program is in Budget Activity 5, Engineering and Manufacturing Development, because the F-22 Program is developing the next-generation air superiority fighter for the USAF to counter emerging worldwide threats.										
(U) C. Program Change Summary (\$ in Thousands)										
					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)					1,945,138	1,411,786	860,676			23,925,670
(U) Appropriated Value					1,945,138	1,411,786				
(U) Adjustments to Appropriated Value										
a. Congressional/General Reductions						-9,882				
b. Small Business Innovative Research										
c. Omnibus or Other Above Threshold Reprogram										
d. Below Threshold Reprogram					3,999					3,999
e. Rescissions					-4,779	-3,069				-7,848

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604239F F-22 EMD

(U) **C. Program Change Summary (\$ in Thousands) Continued**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Adjustments to Budget Years Since FY 2001 PBR	294,707		4,788	301,509
(U) Current Budget Submit/FY 2002 PBR	2,239,065	1,398,835	865,464	24,215,651

(U) **Significant Program Changes:**

- * FY00 - \$300M appropriated for F-22 termination liability was erroneously placed in F-22 EMD BPAC 4069.
- ** FY00-FY02 test article quantities were revised to reflect delayed delivery.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD					PROJECT 4069	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4069 Advanced Tactical Fighter FSD	1,517,936	998,503	716,594	320,525	0	0	0	0	0	22,945,320	
<p>Unit cost of RDT&E articles not separately priced (NSP). * Total Cost includes \$3,779,811,000 of Demonstration and Validation funding prior to FY 1992 funded in PE 0603230F. ** Quantity of RDT&E Articles includes one EMD flight test aircraft delivered in FY 1997 and one in FY98. *** The following net transactions are not reflected in the FY01 program total: BTR = +\$2.854M and ATR = +\$6.388M. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown. The FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) <u>A. Mission Description</u> The F-22 is designed to penetrate enemy airspace and achieve a first look, first kill capability against multiple targets. The F-22 is characterized by a low observable, highly maneuverable airframe, advanced integrated avionics, and aerodynamic performance that allows supersonic cruise without the use of afterburner. The F-22 is currently in the Engineering and Manufacturing Development (EMD) phase of acquisition.</p> <p>The EMD phase effort includes delivery of nine flight test vehicles and two ground test vehicles (static and fatigue); delivery of 25 flight qualified engines; integration and test of the EMD avionics suite including air-to-surface provision; development and test of the F-22 weapons system support and training system; and updating the YF-22 Avionics Flying Laboratory with EMD assets and software to become an avionics integration Flying Test Bed (FTB).</p> <p>The following are representative activities of efforts being accomplished in the given fiscal year.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$638,711 Air Vehicle - Continued full-scale airframe static testing. (NSP) - Completed assembly of EMD aircraft #4003. (NSP) - Continued assembly of EMD aircraft #4004-4009. (NSP) - Initiated First Flight Readiness Review (FFRR) for aircraft #4004. (NSP) - Continued flight test and flight test support. (NSP) (U) \$364,024 Avionics - Initiated Avionics Integration Lab (AIL) Block 3.0 integration. (NSP)</p>											
Project 4069	Page 3 of 15 Pages					Exhibit R-2A (PE 0604239F)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604239F F-22 EMD	PROJECT 4069
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	<ul style="list-style-type: none"> - Continued incorporating avionics software/hardware into the Flight Test Bed (FTB). (NSP) - Continued Diminishing Manufacturing Sources (DMS) redesign activities for production incorporation. (NSP) - Initiated/completed Block 3S FTB testing. (NSP) - Initiated Block 3.0 FTB testing. (NSP) - Completed all remaining Block 3.1 Critical Design Review (CDRs). (NSP) 	
(U) \$123,400	Engine <ul style="list-style-type: none"> - Continued production engine configuration development testing. (NSP) - Continued to deliver and support eleven additional flight test engines (24 total). (NSP) - Continued verification of engine support system products. (NSP) - Continued to build and test additional flight test engines. (NSP) - Continued Initial Service Release (ISR) milestone activities. (NSP) 	
(U) \$91,800	Other Government Cost <ul style="list-style-type: none"> - Continued flight test and flight test support at Edwards AFB. - Continued support of engine testing at Arnold Engineering Development Center (AEDC). - Continued aperture measurements at Rome Labs. - Continued avionics ground testing at various government facilities. - Mission support of the SPO; travel, computer costs, misc contracts, etc. - Procurement of required Government Furnished Equipment (GFE). - Continued live fire testing at Air Force Research Labs. - Completed stores separation testing at AEDC. 	
(U) \$300,001	Other <ul style="list-style-type: none"> - FY00 PRTV II Term Liability should be in BPAC 4874 (PRTV II Aircraft Acquisition) 	
(U) \$1,517,936	Total	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604239F F-22 EMD	PROJECT 4069
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$528,827	Air Vehicle - Complete full-scale airframe static testing. (NSP) - Initiate 1st full-scale airframe lifetime fatigue testing. (NSP) - Complete assembly of EMD aircraft #4004-4007. (NSP) - Continue assembly of EMD aircraft #4008-4009. (NSP) - Complete flight readiness review of EMD aircraft #4004. (NSP) - Complete final production readiness review. (NSP) - Continue flight test and flight test support. (NSP) - Initiate structural certification analysis activities. (NSP)	
(U) \$280,576	Avionics - Complete AIL Block 3.0 integration. (NSP) - Complete Block 3.0 FTB testing. (NSP) - First flight of the first avionics test aircraft. (NSP) - Initiate avionics software Block 3.0 flight testing. (NSP) - Initiate AIL Block 3.1 integration. (NSP) - Continue DMS redesign, requalification and retesting activities. (NSP) - Continue incorporating avionics software/hardware into the FTB. (NSP) - Initiate Block 3.1 FTB testing.	
(U) \$53,600	Engine - Completed delivery and support of 25 flight test engines. (NSP) - Continue production engine configuration development testing. (NSP) - Continue verification of engine support system products. (NSP) - Continue to test flight test engines. (NSP) - Complete Initial Service Release (ISR) milestone activities. (NSP) - Initiate Operational Capability Release (OCR) activities. (NSP)	
(U) \$135,500	Other Government Cost - Continue flight test and flight test support at Edwards AFB. - Continue aperture measurements at Rome Labs.	
Project 4069	Page 5 of 15 Pages	Exhibit R-2A (PE 0604239F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604239F F-22 EMD	PROJECT 4069
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
<ul style="list-style-type: none"> - Complete engine testing at AEDC. - Complete avionics ground testing at various government facilities. - Mission support of the SPO; travel, computer costs, misc contracts, etc. - Procurement of required GFE. - Continue live fire testing at Air Force Research Labs. 		
(U) \$998,503	Total	
<p>The following net transactions are not reflected in the FY01 program total: BTR = +\$2.854M and ATR = +6.388M. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown.</p>		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$435,520	Air Vehicle	
<ul style="list-style-type: none"> - Complete 1st full-scale airframe lifetime fatigue test. (NSP) - Initiate 2nd full-scale airframe lifetime fatigue test. (NSP) - Continue flight test and flight test support. (NSP) - Continue structural certification analysis activities. (NSP) - Complete assembly of EMD aircraft #4008-4009. (NSP) 		
(U) \$116,374	Avionics	
<ul style="list-style-type: none"> - Complete AIL Block 3.1 integration. (NSP) - Complete Block 3.1 FTB testing. (NSP) - Initiate avionics software Block 3.1 flight testing. (NSP) - Continue incorporating avionics software/hardware into the FTB. (NSP) - Continue DMS redesign, requalification and retesting activities. (NSP) - Initiate revised Block 4.0 implementation. (NSP) 		
(U) \$18,300	Engine	
<ul style="list-style-type: none"> - Continue verification of engine support system products. (NSP) - Continue to test flight test engines. (NSP) - Continue Operational Capability Release (OCR) activities. (NSP) 		
(U) \$146,400	Other Government Cost	
Project 4069	Page 6 of 15 Pages	Exhibit R-2A (PE 0604239F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD				PROJECT 4069		
(U) A. Mission Description Continued											
(U) <u>FY 2002 (\$ in Thousands) Continued</u>											
<ul style="list-style-type: none"> - Continue flight test and flight test support at Edwards AFB. - Continue aperture measurements at Rome Labs. - Complete live fire testing at Air Force Research Labs. - Mission support of the SPO; travel, computer costs, misc contracts, etc. 											
(U)	\$716,594	Total									
(U) B. Project Change Summary											
(U) C. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	PRTV II (6)	721,129	400,332	148,870							1,270,331
(U)	(U) F-22 Squadrons (PE 0207138F)			16,092	51,339	137,096	100,828	122,371	158,091		585,817
(U)	(U) Military Construction (PE 0604239F)	18,600	0	0	0	0	0			0	39,700
(U)	(U) Military Construction (PE 0207219F)*	0	25,300	54,050	18,000	16,800	13,200	23,800	23,000	51,600	225,750
(U)	(U) Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	571,514	2,530,370	3,037,312	4,238,783	4,058,014	3,651,719	3,502,100	3,396,417	11,917,292	37,492,734
(U)	(U) Munitions Procurement (PE 0207219F)	1,425	2,702	4,322	6,435	9,556	9,526	11,051	10,930	36,642	93,038
PE 0207138F includes manpower authorizations, peculiar and common support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Operation, maintenance, and logistical support of the F-22 fighter * NOTE: FY04 and outyears not listed in ABIDES. Estimate reflected in DAES/SAR. ** NOTE: Includes BP 10, 11, 16, 19 and Advance Buy.											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																																																																																										
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604239F F-22 EMD			PROJECT 4069																																																																																																																																																																										
<p>(U) <u>D. Acquisition Strategy</u> The EMD contract is Cost Plus Award Fee with Lockheed Martin Aeronautical Systems (LMAS) to produce the F-22 air vehicle and Pratt & Whitney (P&W) to produce the F119 engines. The engines are provided to LMAS as GFE.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:35%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) (U) Aircraft Delivered (EMD Test Article)</td> <td></td><td></td><td></td><td></td> <td style="text-align: center;">*</td> <td></td><td></td><td></td> <td style="text-align: center;">X</td> <td style="text-align: center;">X</td> <td></td><td></td> </tr> <tr> <td>(U) (U) Aircraft Delivered (EMD Test Article)</td> <td></td><td></td><td></td><td></td> <td style="text-align: center;">*</td> <td></td><td></td><td></td> <td></td> <td style="text-align: center;">X</td> <td></td><td></td> </tr> <tr> <td>(U) (U) Aircraft Delivered (EMD Test Article)</td> <td></td><td></td><td></td><td></td> <td style="text-align: center;">*</td> <td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Program Milestones</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) - Program Review, PRTV Award (1QFY99), PRTV II (6) LL (1QFY00)</td> <td></td><td></td><td></td><td style="text-align: center;">*</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) - DAB MS III, 4QFY03</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Engineering Milestones</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) - Final PRR</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td style="text-align: center;">*</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) - First Avionics Flight</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td style="text-align: center;">*</td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) T&E Milestones</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) - Dedicated IOT&E</td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>DIOT&E testing has slipped from Aug 02 to Apr 03 (obj)/Oct 03 (threshold).</p> <p>EMD = Engineering and Manufacturing Development, DAB = Defense Acquisition Board LRIP = Low Rate Initial Production, LL = Long Lead, MS = Milestone, DT&E = Developmental Test & Evaluation, IOT&E = Initial Operational Test & Evaluation</p> <p>NOTE: Schedule is according to current A/C build schedule.</p> <p>* - Completed X - Planned Event</p>											<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) (U) Aircraft Delivered (EMD Test Article)					*				X	X			(U) (U) Aircraft Delivered (EMD Test Article)					*					X			(U) (U) Aircraft Delivered (EMD Test Article)					*								(U) Program Milestones													(U) - Program Review, PRTV Award (1QFY99), PRTV II (6) LL (1QFY00)				*									(U) - DAB MS III, 4QFY03													(U) Engineering Milestones													(U) - Final PRR								*					(U) - First Avionics Flight								*					(U) T&E Milestones													(U) - Dedicated IOT&E												
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Project 4069			Page 8 of 15 Pages				Exhibit R-2A (PE 0604239F)																																																																																																																																																																										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD			PROJECT 4069		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		
(U)	Air Vehicle/Avionics					1,002,735	809,403	551,894		
(U)	Engine					123,400	53,600	18,300		
(U)	Government Cost									
(U)	- Government Test					77,900	116,500	132,200		
(U)	- Mission Support					11,000	11,500	11,500		
(U)	- HAZMAT					0	0	0		
(U)	- GFE					2,900	7,500	2,700		
(U)	Other - PRTV II Term Liability Misplaced					300,001				
(U)	Total					1,517,936	998,503	716,594		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Lockheed (Air Veh)	C/CPAF	Aug 91	13,184,000	15,396,904	12,838,447	1,002,735	809,403	551,894	194,425	15,396,904
Pratt & Whitney	C/CPFF	Aug 91	2,265,600	2,415,179	2,208,279	123,400	53,600	18,300	11,600	2,415,179
<u>Support and Management Organizations</u>										
Support Contracts	Various	Various	N/A	N/A	12,402	1,900	1,600	1,500	1,500	18,902
In House Support	Various	Various	N/A	N/A	94,998	9,100	9,900	10,000	10,000	133,998
<u>Test and Evaluation Organizations</u>										
AEDC	PO		N/A	N/A	124,600	18,300	12,500	0	0	155,400
AFFTC	PO		N/A	N/A	192,600	56,800	99,600	109,600	64,400	523,000
All Other Tests	Various	Various	N/A	N/A	95,025	2,800	4,400	22,600	36,800	161,625
Note: The Project Office EAC includes the following items not included in the Performing Activity (i.e., Contractor) EAC - Base Fee, Award Fee, SPO Planned CCPs not yet on contract, and other adjustments based on results of the restructured program.										
Project 4069					Page 9 of 15 Pages	Exhibit R-3 (PE 0604239F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604239F F-22 EMD			PROJECT 4069		
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u>	<u>Award or</u> <u>Obligation</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
GFE	Various	Various	Various	45,600	2,900	7,500	2,700	1,800	60,500
<u>Support and Management Property</u>									
Other - PRTV II Term					300,001				300,001
Liability									
<u>Test and Evaluation Property</u>									
Not Applicable									
<u>Subtotals</u>				<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development				15,092,326	1,129,035	870,503	572,894	207,825	17,872,583
Subtotal Support and Management				107,400	311,001	11,500	11,500	11,500	452,901
Subtotal Test and Evaluation				412,225	77,900	116,500	132,200	101,200	840,025
Total Project				15,611,951	1,517,936	998,503	716,594	320,525	19,165,509
NOTE: Total program cost for Engineering and Manufacturing Development only. Does not include \$3,779,811,000 of Demonstration and Validation funding prior to FY92.									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD					PROJECT 4874
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4874 PRTVII Aircraft Acquisition	721,129	400,332	148,870	0	0	0	0	0	0	1,270,331
<p>The following net transactions are not reflected in the FY01 program total: BTR = +\$1.145M and ATR = +\$2.561M. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown. The FY03 - FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) <u>A. Mission Description</u> Complete test aircraft to support continued F-22 development and production. The PRTV II (6) Full Contract Award (Dec 99) criteria, approved by OUSD (A&T) on 23 Dec 98, required the program to demonstrate maturity prior to a contract award.</p> <p>Following successful completion of all CY99 DAE criteria, the Air Force awarded contracts for PRTV II (6) and Lot 1 Advanced Buy aircraft on 30 Dec 99.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$656,972 Air Vehicle (U) \$60,000 Engine (U) \$4,157 Other Government Cost (U) \$721,129 Total *FY00 - Does not include \$300M appropriated for F-22 termination liability or for other F-22 program contractual requirements in lieu of termination liability obligations. This was erroneously placed in the F-22 EMD BPAC 4069.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$308,167 Air Vehicle (U) \$90,100 Engine (U) \$2,065 Other Government Cost (U) \$400,332 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR = +\$1.145M and ATR = +\$2.561M. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown.</p>										
Project 4874			Page 11 of 15 Pages				Exhibit R-2A (PE 0604239F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD				PROJECT 4874	
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2002 (\$ in Thousands)</u>										
(U)	\$148,568	Air Vehicle								
(U)	\$302	Engine								
(U)	\$0	Other Government Cost								
(U)	\$148,870	Total								
(U) <u>B. Project Change Summary</u>										
N/A										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E	1,517,936	998,503	716,594	320,525					22,945,320
(U)	F-22 Squadrons (PE 0207138F)			16,092	51,339	137,096	100,828	122,371	158,091	585,817
(U)	Military Construction (PE 0604239F)	18,600	0	0	0	0	0		0	39,700
(U)	Military Construction (PE 0207219F)*	0	25,300	54,050	18,000	16,800	13,200	23,800	23,000	51,600
(U)	Aircraft Procurement (PE 0207219F) Advanced Tactical Fighter, P-1 Line Item #003**	571,514	2,530,370	3,037,312	4,238,783	4,058,014	3,651,719	3,502,100	3,396,417	11,917,292
(U)	Munitions Procurement (PE 0207219F)	1,425	2,702	4,322	6,435	9,556	9,526	11,051	10,930	36,642
(U)	Other APPN									
PE 0207138F includes manpower authorizations, peculiar and common support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Operation, maintenance, and logistical support of the F-22 fighter.										
*NOTE: FY04 and outyears not listed in ABIDES. Estimate reflected in DAES/SAR.										
Project 4874			Page 12 of 15 Pages				Exhibit R-2A (PE 0604239F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD			PROJECT 4874			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
**NOTE: Includes BP10, 11, 16, 19 and Advance Buy.											
(U) D. Acquisition Strategy											
The PRTV II contract is Firm Fixed Price with Lockheed Martin Aeronautical Systems (LMAS) to produce the F-22 air vehicle and Pratt & Whitney (P&W) to produce the F119 engines. The engines are provided to LMAS as GFE.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U)	Aircraft Delivered (PRTV II Test Article)									X	X
(U)	Aircraft Delivered (PRTV II Test Article)									X	X
	Aircraft Delivered beyond FY 2002 as follows:										
	FY 2003 1Q 2										
	NOTE: Schedule is according to current A/C build schedule.										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604239F F-22 EMD			PROJECT 4874			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			
(U)	Air Vehicle					656,972	308,167	148,568			
(U)	Engine					60,000	90,100	302			
(U)	Other Government Cost					4,157	2,065	0			
(U)	Total					721,129	400,332	148,870			
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Lockheed (Air Veh)	FFP	Dec 99	1,344,132	1,344,132		656,972	308,167	148,568	0	1,113,707
	Pratt & Whitney	FFP	Dec 99	180,402	180,402		60,000	90,100	302	0	150,402
<u>Support and Management Organizations</u>											
	N/A	N/A	N/A	N/A	N/A						
<u>Test and Evaluation Organizations</u>											
	N/A	N/A	N/A	N/A	N/A						
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	GFE	Various	Various	Various			4,157	2,065	0	0	6,222
<u>Support and Management Property</u>											
	Not Applicable	N/A	N/A	N/A							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE	
BUDGET ACTIVITY				PROJECT	
05 - Engineering and Manufacturing Development				0604239F F-22 EMD	
				4874	
(U) Government Furnished Property Continued:					
<u>Test and Evaluation Property</u>					
Not Applicable	N/A	N/A	N/A		
				<u>Total Prior</u>	<u>Total</u>
				<u>to FY 2000</u>	<u>Program</u>
<u>Subtotals</u>				<u>Budget</u>	<u>Budget</u>
Subtotal Product Development				<u>FY 2000</u>	<u>FY 2001</u>
Subtotal Support and Management				<u>FY 2002</u>	<u>Budget to</u>
Subtotal Test and Evaluation					<u>Complete</u>
Total Project					
				721,129	400,332
				148,870	0
					1,270,331
				721,129	400,332
				148,870	0
					1,270,331

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Exhibit P-5. Weapon System Cost Analysis	Date: June 2001
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number	P-1 Line Item Nomenclature
Aircraft Procurement, Air Force, Budget Activity 01, Combat Aircraft, Item No.	F-22 RDT&E Procurement

Manufacturer's Name/Plant City/State Location	Subline Item
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Weapon System Cost Elements	Ident Code	add to total program	calc unit cost	Total Cost In Millions of Dollars								
				FY 2000			FY 2001			FY 2002		
				Qty	Unit Cost	Total Cost	Qty	Unit Cost	Total Cost	Qty	Unit Cost	Total Cost
Airframe Flyaway (TPC & PSAS)	A	1		6		782.51			308.17			148.57
Installed Engines	A	1				58.22			90.10			0.30
Airframe Term Liability	A	1										
Engine Term Liability	A	1										
Avionics	A											
Armament	A											
Software	A											
Other Government Furnished Equipment (GFE)	A											
Engineering Change Orders (ECO)	A											
Nonrecurring Costs	A											
Other Costs	A											
FLYAWAY COST SUBTOTAL	A	0				840.73			398.27			148.87
Airframe Peculiar Ground Support Equipment (PGSE)	A											
Airframe Support	A	1				144.48						
Engine Support	A	1				31.77						
OGC	A	1				4.16			2.07			
Engine PGSE	A											
Peculiar Training Equipment	A											
Publications/Technical Data	A											
ECOs	A											
Other	A											
SUPPORT COST SUBTOTAL	A	0				180.40			2.07			
TOTAL PROGRAM						1021.13			400.33			148.87

Comments
 FY00 - Includes \$300M appropriated for F-22 termination liability that was subsequently obligated against program contractual requirements. The \$300M was loaded in the F-22 EMD BPAC 4069 in error. The correct BPAC is 4874.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber					PROJECT 3843	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3843	B-2 Advanced Technology Bomber	286,381	129,118	155,004	116,923	78,641	47,006	14,001	14,298	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>'Note: The FY 03-FY 07 budget numbers do not reflect DoD's strategic review results.'</p> <p>(U) A. Mission Description The B-2 SPIRIT is America's most advanced long-range strike aircraft. This all-wing two crew member aircraft has twin weapons bays of over 20,000 pounds capacity each and employs a wide array of signature reduction technologies to greatly enhance its ability to penetrate enemy defenses and survive in a highly defended target environment. The B-2 provides global force projection capability and the ability to influence an enemy regardless of the location of enemy assets or the availability of forward basing.</p> <p>(U) FY 2000 (\$ in Thousands) (U) \$6,899 Continue Developmental Test and Evaluation (U) \$11,900 Continue Air Force Mission Support System (AFMSS) support for baseline B-2; AFMSS support for Link-16/Center Instrument Display(CID)/Inflight Replanner(IFR) and Enhanced Guided Bomb Unit (EGBU)-28 Congressional Plus-Up. (U) \$17,700 Continue support for Labs, Facilities, and other government agencies for baseline B-2; support for Labs, Facilities, and other government agencies for Link-16/CID/IFR and EGBU-28 Congressional Plus-Up (U) \$124,953 Continue support for modification of Engineering and Manufacturing Development (EMD) Aircraft; continue Joint Air to Surface Standoff Missile (JASSM) integration; contractor support of flight test base of operations; conduct B-2 Extremely High Frequency (EHF) Risk Reduction study (U) \$124,929 Congressional Plus-up programs development (Link 16/CID/IFR, EGBU-28 Integration, Stealth Enhancement, Next Generation Bomber Study, Classified Program/efforts) (U) \$286,381 Total</p> <p>(U) FY 2001 (\$ in Thousands) (U) \$10,227 Continue Developmental Test and Evaluation (U) \$4,556 Continue AFMSS support for baseline B-2 (U) \$2,500 Continue AFMSS support for EGBU-28; Begin support for Mk-82 Joint Direct Attack Munition (JDAM)/Smart Bomb Rack Assembly (SBRA) Congressional Plus-Up</p>											
Project 3843		Page 1 of 6 Pages					Exhibit R-2 (PE 0604240F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
		June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
05 - Engineering and Manufacturing Development	0604240F B-2 Advanced Technology Bomber	3843			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2001 (\$ in Thousands) Continued</u>					
(U) \$7,309	Continue support for Labs, Facilities and other government agencies for baseline B-2				
(U) \$9,330	Continue support for Labs, Facilities, and other government agencies for Link-16/CID/IFR and EGBU-28 Congressional Plus-Up; Begin support for Mk-82 JDAM/SBRA				
(U) \$29,863	Continue support for modification of EMD Aircraft; continue JASSM integration; continue contractor support of flight test base of operations; continue classified efforts; perform integration studies, reports, and analyses				
(U) \$65,333	Continue development of Congressional Plus-up programs (Link 16/CID/IFR, EGBU-28 Integration); Begin Mk-82 JDAM/SBRA development				
(U) \$129,118	Total				
(U) <u>FY 2002 (\$ in Thousands)</u>					
(U) \$9,695	Continue Developmental Test and Evaluation				
(U) \$4,150	Continue AFMSS support for baseline B-2, continue support for Mk-82 JDAM/SBRA				
(U) \$2,000	Begin AFMSS support for EHF SATCOM Integration				
(U) \$6,868	Continue support for Labs, Facilities and other government agencies for baseline B-2, continue support for MK-82 JDAM/SBRA				
(U) \$2,030	Begin support for Labs, Facilities and other government agencies for EHF SATCOM Integration				
(U) \$84,581	Continue support for modification of EMD Aircraft; continue Mk-82 JDAM/SBRA; continue contractor support of flight test base of operations; continue classified efforts; perform integration studies, reports, and analyses.				
(U) \$45,680	Begin development of EHF SATCOM Integration				
(U) \$155,004	Total				
(U) <u>B. Budget Activity Justification</u>					
This program is in budget activity 5 - Engineering and Manufacturing Development - because of concurrency in developing, testing, producing, and deploying the B-2.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)		297,854	48,313	33,397	TBD
(U) Appropriated Value		301,765	130,313		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions		-1,892	-912		
b. Small Business Innovative Research		-8,615			
Project 3843	Page 2 of 6 Pages	Exhibit R-2 (PE 0604240F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604240F B-2 Advanced Technology Bomber			3843				
(U) C. Program Change Summary (\$ in Thousands) Continued											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
	c. Omnibus or Other Above Threshold Reprogram										
	d. Below Threshold Reprogram										
				-3,697							
	e. Rescissions										
				-1,180	-283						
(U)	Adjustments to Budget Years Since FY 2001 PBR										
						121,607					
(U)	Current Budget Submit/FY 2002 PBR										
				286,381	129,118	155,004		TBD			
(U) Significant Program Changes:											
FY00: Congress appropriated an additional \$100M for B-2 RDT&E (Added \$141.6M: classified program (\$30.1M), Link 16/CID (\$68.7M), EGBU-28 Integration (\$16.8M), Inflight Replanner (20M), Stealth Enhancement (\$4M), and Next Generation Bomber Study (\$2M); reduced RDT&E by \$10M due to delay of AV-3 modifications and reduced RDT&E by \$31.6M due to JASSM integration savings.)											
FY01: Congress appropriated an additional \$82M: Mk-82 JDAM/SBRA Integration (\$56M), EGBU-28 Integration (\$15M), and In-flight Replanner (\$11M)											
'The following net transactions are not reflected in the FY 01 program total: BTR = +\$127K, SBIR = -\$3642K. These transactions are not reflected in other sections of the RDocs where an FY 01 total is shown.'											
FY02: Added Mk-82 JDAM/SBRA Integration (\$71.0M); added EHF Integration (\$51.6M); offset per OSD review (\$1.890M); adjustment for inflation (\$917K); decrease to T&E funding for higher AF priority (\$20K).											
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	A/C Proc, AF, Combat A/C/BA07/B-2A	0	0	0	0	0	0				
(U)	A/C Proc, AF, Post Prod Support/BA07	65,876	18,433	12,647	3,330	7,453	7,652	7,811	7,977		
(U)	A/C Proc, AF, Modifications/BA05/B-2A	17,192	23,678	19,810	20,727	23,156	51,133	38,717	20,071		
(U)	A/C Prod, AF, ICS	47,294	42,310	38,612	34,007	33,989	34,522	23,645	12,140		
(U)	A/C Proc, AF, Cmn Spt Eq/BA07/Items<\$2M	448	439	427	432	479	478	488	499		
Project 3843											
Page 3 of 6 Pages											
Exhibit R-2 (PE 0604240F)											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber				PROJECT 3843			
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	A/C Proc, AF, A/C Initial Spares/BA06/B-2A	60,036	36,956	12,313	8,666	4,920	4,064	4,052	2,752			
(U)	Proc (Other), AF/BA 02,03, 04/B-2A	5,225	6,043	8,327	7,655	7,821	7,995	8,154	8,334			
(U)	Military Construction/BA01	23,000	12,050	0	0	0	0	0	0			
(U) E. Acquisition Strategy												
Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor; use of cost plus award fee (CPAF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations												
(U) F. Schedule Profile												
					<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
					1	2	3	4	1	2	3	4
(U)	A/V 5 Block 30 Upgrade Complete					*						
(U)	20th Block 30 Air Vehicle Delivery						*					
(U)	AHFM Flight Test Complete							*				
(U)	SATCOM/DAMA Flight Test Complete									X		
(U)	JASSM Flight Test Complete									X		
(U)	EHF Contract Award										X	
	* = Completed event											
	x = Planned event											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604240F B-2 Advanced Technology Bomber			PROJECT 3843			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Equipment Development & Evaluation					231,015		97,740		138,317	
(U)	Government Test					6,899		10,227		7,789	
(U)	Other Government Costs (OGC)					17,700		16,639		8,898	
(U)	Other					30,767		4,512		0	
(U)	Total					286,381		129,118		155,004	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Air Vehicle - NG	Multiple	Multiple	21,858,695	21,864,578	21,214,149	219,115	90,684	132,067	206,673	21,862,688
	Aircrew Training	CPIF	Jul 1985	561,345	561,345	561,345	0	0		0	561,345
	Mission Planning	Multiple	Multiple	342,137	342,137	313,381	11,900	7,056	6,150	3,650	342,137
<u>Support and Management Organizations</u>											
	Other Govt Costs	N/A		1,074,796	1,074,796	979,299	48,467	21,151	8,898	16,981	1,074,796
<u>Test and Evaluation Organizations</u>											
	Govt Test	N/A	N/A	850,336	850,336	781,856	6,899	10,227	7,789	Continuing	TBD
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	Engines G.E.	Multiple	Multiple	N/A		566,500	0	0		0	566,500
	AARL Boeing		FPIF	Jun 88		125,821		0	100	0	125,921

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE		PROJECT	
05 - Engineering and Manufacturing Development			0604240F B-2 Advanced Technology Bomber		3843	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
<u>Test and Evaluation Property</u>						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development		22,781,196	231,015	97,740	138,317	210,323 23,458,591
Subtotal Support and Management		979,299	48,467	21,151	8,898	16,981 1,074,796
Subtotal Test and Evaluation		781,856	6,899	10,227	7,789	TBD TBD
Total Project		24,542,351	286,381	129,118	155,004	TBD TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604251F SPACE-BASED RADAR EMD					PROJECT 5009		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5009	SBR Concept and Technology Development	0	0	50,000	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY02: New start initiated. Follow-on programmatic details and any associated budget requirements are being developed by USAF. Due to a database error and late receipt of a Program Element (PE) the funding is currently loaded in the wrong PE [i.e. 64251F (BA 5)]; however, funding for this new start should be appropriated in PE 63858F, Space Based Radar Dem/Val (BA 4).

FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) **A. Mission Description**

The 2001 Multi-Theater Target Tracking Capability (MT3C) Mission Needs Statement (MNS) establishes the requirement for continuous multi-theater surveillance, identification, tracking, and targeting of ground-moving targets. In June 2001 USD(AT&L) directed a focused requirements and risk reduction effort to provide a space element of a future air/space Intelligence, Surveillance, and Reconnaissance (ISR) system to satisfy the MT3C MNS no later than FY10.

The Space Based Radar (SBR) program is focused to mature technology and develop an ISR system capable of providing Ground Moving Target Indication (GMTI), Synthetic Aperture Radar (SAR) imaging, and Digital Terrain and Elevation Data (DTED) over a large portion of the Earth on a near-continuous basis. The system will maximize utility to the tactical warfighters through responsive tasking and timely data dissemination. The SBR system will allow military forces a 'deep-look' into denied areas of interest, on a non-intrusive basis without risk to personnel or resources. This can be done across the spectrum of conflict and simultaneously in multiple theaters -- not currently available with existing capabilities.

Technology maturation, risk reduction and concept development are essential elements of the SBR program strategy to reach initial operational capability (IOC) prior to the end of FY10. Investments in key risk areas are focused to mature technologies leading to component design and demonstration. Concept development activities will focus on reducing risk, integrating technologies, and evaluating system level concepts. Demonstrations as well as modeling and simulation will maximize the operational capabilities of the SBR system.

(U) **FY 2000 (\$ in Thousands)**

(U) \$0 No Activity

(U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																													
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604251F SPACE-BASED RADAR EMD	PROJECT 5009																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$13,000 Begin Electronically Scanned Array development (continuation of classified FY01 effort)</p> <p>(U) \$5,000 Begin Battle Management Command, Control and Communication BMC3 effort</p> <p>(U) \$13,000 Begin Concept Definition/Risk Reduction for candidate operational system to support Analysis of Alternatives efforts (mature on-board processing technology, data fusion, ECCM, etc.)</p> <p>(U) \$12,000 Begin Requirements Development (SBR system and spacecraft operational requirements definition)</p> <p>(U) \$2,000 Begin Ground Moving Target Indication (GMTI) demonstration (classified) program (algorithm development, data analysis, etc.) [continuation of classified FY01 effort]</p> <p>(U) \$5,000 Provide Program Support</p> <p>(U) \$50,000 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>Due to a database error the funding is currently loaded in the wrong PE [i.e., 64251F (BA 5)], the funding for this new start should be appropriated in PE 63858F, Space Based Radar Dem/Val (BA 4). This activity is a BA 4 because all efforts are included in the demonstration and validation phase and are necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td></td> <td></td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)			0	0	(U) Appropriated Value					(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																											
(U) Previous President's Budget (FY 2001 PBR)			0	0																																											
(U) Appropriated Value																																															
(U) Adjustments to Appropriated Value																																															
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Project 5009	Page 2 of 6 Pages	Exhibit R-2 (PE 0604251F)																																													

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604251F SPACE-BASED RADAR EMD					PROJECT 5009			
(U) C. Program Change Summary (\$ in Thousands) Continued													
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>Total Cost</u>		
(U)	Adjustments to Budget Years Since FY 2001 PBR								50,000				
(U)	Current Budget Submit/FY 2002 PBR								50,000		TBD		
(U)	<u>Significant Program Changes:</u>												
	In response to FY01 Congressional Authorization Language, the Secretary of Defense developed a roadmap for an acquisition program that addressed technology maturation, concept development, and risk reduction requirements for a SBR system with a 2008 initial launch capability.												
(U) D. Other Program Funding Summary (\$ in Thousands)													
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U)	AF RDT&E												
(U)	RDT&E-AF, PE 62204F, Aerospace Sensors (BA-2, R-6)			2,300									
(U)	Other APPN												
(U)	None												
(U) E. Acquisition Strategy													
	(U) The Air Force will lead the SBR Joint Program Office with the National Reconnaissance Office (NRO) as the principal partner. The acquisition strategy will consist of a mixture of sole source and competitive award approaches.												
(U) F. Schedule Profile													
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>			
					1	2	3	4		1	2	3	4
(U)	Milestone A										X		
(U)	Release Request for Proposal for technology risk reduction										X		
(U)	Analysis of Alternatives supporting contracts in place										X		
(U)	Technology Risk Reduction Contract Award										X		
(U)	Electronically Scanned Array (ESA) Technology Contracts awarded										X		
(U)	Battle Management Command, Control and Communication effort										X		
Project 5009					Page 3 of 6 Pages				Exhibit R-2 (PE 0604251F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604251F SPACE-BASED RADAR EMD					PROJECT 5009			
(U) F. Schedule Profile Continued													
		<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>	
		1	2	3	4	1	2	3	4	1	2	3	4
funded													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604251F SPACE-BASED RADAR EMD			5009		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Electronically Scanned Array risk reduction effort									13,000
(U)	Battle Management Command, Control and Communications effort									5,000
(U)	Concept Definition/Risk Reduction for candidate operational system to support Analysis of Alternatives efforts (mature on-board processing technology, data fusion, ECCM, etc.)									13,000
(U)	Requirements Development (SBR system and spacecraft operational requirements definition)									12,000
(U)	Ground Moving Target Indication (GMTI) demonstration (classified) program (algorithm development, data analysis, etc.)									2,000
(U)	Program Support									5,000
(U)	Total									50,000
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
SMC & AFSPC	TBD							5,000	Continuing	TBD
Electronically Scanned Array development	Add to Existing Contract							13,000	Continuing	TBD
Multiple System Integrating Contractors - Concept Definition/Risk Reduction	Competitive							13,000	Continuing	TBD
ESC/NIMA - Battle Management Command, Control and Communications effort	FFRDC/SETA Contracts							5,000	Continuing	TBD
Project 5009					Page 5 of 6 Pages			Exhibit R-3 (PE 0604251F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604251F SPACE-BASED RADAR EMD			PROJECT 5009		
(U) Performing Organizations Continued:									
<u>Product Development Organizations</u>									
Ground Moving Target	Add to current						2,000	Continuing	TBD
Identification (GMTI) Demo	classified								
Program	contract								
<u>Support and Management Organizations</u>									
AFSPC Requirements	FFRDC/SETA	Various	Continuing	Continuing			12,000	Continuing	TBD
Development	and GSA								
	contracts								
<u>Test and Evaluation Organizations</u>									
N/A									
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
Subtotal Product Development								38,000	TBD
Subtotal Support and Management								12,000	TBD
Subtotal Test and Evaluation									
Total Project								50,000	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	69,266	52,611	41,267	45,842	55,972	43,838	37,430	38,222	Continuing	TBD
1011 Joint Service Electronic Combat Systems Tester	2,618	2,937	3,521	0	0	0	0	0	0	48,334
2462 Compass Call (CC)	693	812	0	0	0	0	0	0	0	66,782
3891 Advanced IR Counter Measures (AIRCМ)	39,635	4,366	991	3,343	3,351	3,425	3,498	3,570	Continuing	TBD
3945 RF Towed Decoy Systems	15,373	25,968	34,928	42,499	52,621	40,413	33,932	34,652	Continuing	TBD
4832 Precision Location and Identification (PLAID)	10,947	13,376	1,827	0	0	0	0	0	0	30,320
8462 MALD	0	5,152	0	0	0	0	0	0	0	5,152
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

AIRCМ includes four subprojects: Common Missile Warning System (CMWS), Advanced Strategic and Tactical Infrared Expendables (ASTE), Large Aircraft IRCМ (LAIRCМ)/Large Aircraft IR Flyout Experiment (LIFE), and software upgrade to AAR-47.

FY03 - FT07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 This program element (PE) consolidates engineering development efforts related to Air Force Electronic Warfare (EW) requirements. It centralizes USAF funding and management of common EW systems development. These funds transition EW technologies to an installed operational capability. This PE executes projects to provide capabilities to deter, detect, deceive and counter enemy acquisition and tracking of DoD operational platforms plus enemy Radio Frequency (RF) information operations worldwide. These projects include Infrared (IR), RF and laser situational awareness and self protection systems, command and control warfare (C2W) electronic attack systems, and the test equipment needed to support them.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

June 2001

BUDGET ACTIVITY

05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604270F EW Development(U) **A. Mission Description Continued**

The following net transactions are not reflected in the FY01 program total: BTR:+507K and SBIR of -\$1,674K. These transactions are not reflected in other sections of the R-docs where FY01 total is shown.

(U) **B. Budget Activity Justification**

A key criterion for the included projects in this program element is the need for engineering and manufacturing developmental activities, therefore these programs are in Budget Activity 5 - Engineering and Manufacturing Development (EMD).

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	87,187	58,198	53,655	TBD
(U) Appropriated Value	86,847	53,098		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-569	-372		
b. Small Business Innovative Research	-2,480			
c. Omnibus or Other Above Threshold Reprogram	-2,565			
d. Below Threshold Reprogram	-11,627			
e. Rescissions	-340	-115		
(U) Adjustments to Budget Years Since FY 2001 PBR			-12,388	
(U) Current Budget Submit/FY 2002 PBR	69,266	52,611	41,267	TBD

(U) **Significant Program Changes:**

\$11,627M of FY00 funding was transferred from PE64270F for higher Air Force priorities.

\$2.565M of FY00 funding is identified for Omnibus.

Congressional reduction in FY01 of \$19.8M for Air Force withdrawal from the CMWS program.

Congressional add of \$1.2M in FY01 for MALD transition from Advanced Concept Technology Demonstration, \$10M for Precision Location and Identification (PLAID) EMD, and \$3.5M for Survivability Enhancements: \$2.5M for ALR-56C processor upgrade, \$0.7M for Comet Pod force development evaluation, and \$0.3M for Pouncer 2 hosting on an airborne platform.

\$2.6M was transferred in FY02 from this PE to the Compass Call PE.

\$3.5M was transferred in FY02 from JSECST production to JSECST RDT&E to fund development of the follow-on test program sets.

\$14.8M was removed from FY02 due to the cancellation of the Common Missile Warning System

\$0.3M was removed from FY02 from IDECM due to program realignment.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

June 2001

BUDGET ACTIVITY

05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604270F EW Development

(U) C. Program Change Summary (\$ in Thousands) Continued

(U) Significant Program Changes Continued:
\$1.8M was added in FY02 to fund PLAID RDT&E cost growth.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 1011	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1011	Joint Service Electronic Combat Systems Tester	2,618	2,937	3,521	0	0	0	0	0	0	48,334
FY03-FY07 budget numbers do not reflect the DoD strategic review results.											
(U) A. Mission Description											
The Joint Service Electronic Combat Systems Tester (JSECST) fills a combined Air Force and Navy operational requirement for a small, adaptable, and highly mobile tester capable of verifying system level performance of installed electronic countermeasures systems. JSECST provides an organizational-level flight line capability for verifying operational status of aircraft-installed electronic combat (EC) systems including Group A antennas and transmission lines. JSECST will fill a void in current Air Force end-to-end test capability. The JSECST system consists of core test sets (CTS), nomenclature AN/USM-670, test program sets (TPS), and software development stations (SDS). The CTS provides the stimulus, measurement, operator-interface, analysis and control functions common across all applications. The TPSs provide aircraft specific hardware interfaces and software packages to employ the CTS. The SDS provides computer resources for developing and maintaining CTS and TPS software. Initial TPS will support the F-15C. The Follow-on Test Program Set (FOTPS) program will design, develop, assemble, integrate, test, and deliver TPSs for use with the AN/USM-670 for additional aircraft. The follow-on Air Force platforms include the F-15E, F-16 (Blocks 25/30/32/40/42/50/52), and OA/A-10. Navy platforms include the AV-8B, F/A-18 A/B and the F-14 B/D. (Navy platforms will be funded by the Navy.) JSECST is intended to meet the organizational level support equipment requirements of electronic combat systems for service through a 20-year life cycle.											
(U) FY 2000 (\$ in Thousands)											
(U)	\$1,253	Initiate FOTPS Engineering Manufacturing Development (EMD) Contract									
(U)	\$874	Continue CTS Development									
(U)	\$325	Continue SPO Support									
(U)	\$136	Continue Government Test									
(U)	\$30	Continue TPS Lab Support									
(U)	\$2,618	Total									
(U) FY 2001 (\$ in Thousands)											
(U)	\$2,216	Continue FOTPS EMD Contract									
(U)	\$102	Complete CTS Development									
(U)	\$364	Continue SPO Support									
(U)	\$185	Continue Government Test									
(U)	\$70	Continue TPS Lab Support									
Project 1011				Page 4 of 33 Pages				Exhibit R-2A (PE 0604270F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 1011			
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2001 (\$ in Thousands) Continued</u>											
(U) \$0 No Activity											
(U) \$2,937 Total											
The following net transactions are not reflected in the FY01 program total: BTR=-626K and SBIR=-93.3K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.											
(U) <u>FY 2002 (\$ in Thousands)</u>											
(U) \$2,871 Complete FOTPS EMD Contract											
(U) \$390 Continue SPO Support											
(U) \$195 Complete Government Test											
(U) \$65 Complete TPS Lab Support											
(U) \$3,521 Total											
(U) <u>B. Project Change Summary</u>											
\$3.5M of FY02 production funding was zero balance transferred to JSECST RDT&E to fund FOTPS development.											
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) Other APPN											
(U)	Aircraft Procurement, AF PE	0	17,089	24,269	5,449	0	0	0	0	0	46,807
	27442F (Common ECM Equipment), In Service Direct Ground Support Equipment, BP-12										
(U)	Initial Spares, BP-16	0	717	152	318	0	0	0	0	0	1,187
(U)	Total Aircraft Procurement, AF	0	17,806	24,421	5,767	0	0	0	0	0	47,994

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 1011
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(U) **D. Acquisition Strategy**
 The acquisition strategy is competitive, cost-plus contracts for CTS development. FOTPS acquisition strategy is a sole source, cost-plus contract. Production and support contract is sole source.

(U) **E. Schedule Profile**

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Developmental Test & Evaluation		*										
(U) Functional Configuration Audit			*									
(U) Operational User Flight Line Assessment					*							
(U) CTS Milestone III (Apr 01)							*					
(U) CTS Production Lots award (Jul 01)									X			
(U) Complete FOTPS Development												X

* - Denotes a completed event
 X - Denotes a planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 1011			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	EMD Contracts					2,127		2,318		2,871	
(U)	SPO Support					325		364		390	
(U)	Government Test					136		185		195	
(U)	FOTPS Lab Support					30		70		65	
(U)	Total					2,618		2,937		3,521	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	AAI	CPAF	Mar 96	28,340	28,340	27,106	874	102		0	28,082
	FO TPS AAI	CPIF	Jun 00	6,325	6,325	0	1,253	2,216	2,871	0	6,340
	<u>Support and Management Organizations</u>										
	ASC/SMNT, NAVAIR, Wright Labs		Various			11,064	325	364	390	0	12,143
	<u>Test and Evaluation Organizations</u>										
	53 EWG, 46 TW, Eglin AFB FL					1,088	166	255	260	0	1,769
						<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Subtotals</u>										
	Subtotal Product Development					27,106	2,127	2,318	2,871	0	34,422
	Subtotal Support and Management					11,064	325	364	390	0	12,143
	Subtotal Test and Evaluation					1,088	166	255	260	0	1,769
	Total Project					39,258	2,618	2,937	3,521	0	48,334

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 2462
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2462 Compass Call (CC)	693	812	0	0	0	0	0	0	0	66,780
<p>FY03-07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> COMPASS CALL is the USAF's only non-lethal Suppression of Enemy Air Defense (SEAD) platform and airborne wide area coverage offensive counter information system. It denies, disrupts, degrades and deceives adversary voice and data communications, disrupting the ability to effectively command and control forces in the field. Although a fielded, operational capability, COMPASS CALL continues to evolve and adapt to counter the changing adversary tactical communications systems. The Tactical Radio Acquisition and Countermeasures Subsystem (TRACS) replaces the aging compressive receiver suite responsible for acquiring target systems with a digital, reprogrammable receiver system. TRACS will enable COMPASS CALL to remain viable in countering the next generation of deployed threats. Additionally, new target (class 6) countermeasures capability is under development. This effort funds the non-recurring efforts associated with TRACS development for COMPASS CALL.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$393 Continue new target class countermeasures development (U) \$150 Initiate Block 30 threat signal update (U) \$150 Initiate Block 30 waveform update (U) \$693 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$312 Continue New target class countermeasures development (U) \$250 Continue New target class countermeasures operational flight test (U) \$125 Continue Block 30 threat signal update (U) \$125 Continue Block 30 waveform update (U) \$812 Total</p> <p>The following transactions are not reflected in the FY01 program total: BTR=-\$7K and SBIR=-\$37K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.</p>										
Project 2462			Page 8 of 33 Pages				Exhibit R-2A (PE 0604270F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604270F EW Development

PROJECT
2462

(U) **A. Mission Description Continued**

(U) **FY 2002 (\$ in Thousands)**

(U) \$0 No Activity (RDT&E funding has been transferred to Compass Call PE27253F)

(U) \$0 Total

(U) **B. Project Change Summary**

All program funding in this project for FY02 and later has been transferred to Compass Call PE 27253F.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
(U) Compass Call (RDT&E), AF PE27253F	13,780	21,681	3,885	3,878	3,870	0	5,000	6,456	Continuing	Continuing

(U) **D. Acquisition Strategy**

Cost Plus Incentive Fee/Award Fee contracting will be employed for all activities.

(U) **E. Schedule Profile**

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) TRACS Flight Test												
(U) TRACS PDR	*											
(U) New Countermeasures#	*	*	*	*	*	*	*	*	X			
(U) New CM Flt Test	*	*	*	*	*	*	*	*	X			
(U) Block 30 Signals Update#		*	*	*	*	*	*	*	X			
(U) Block 30 Waveform Update#		*	*	*	*	*	*	*	X			

- New countermeasures development and Block 30 signals/waveform updates are a continuing effort to improve the existing system's ability to effectively counter emerging threats. Due to the dynamic nature of this platform's mission, this effort is a continuous activity.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 2462
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(U) E. Schedule Profile Continued

<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
1	2	3	4	1	2	3	4	1	2	3	4

* - Denotes a completed event
X - Denotes a planned event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 2462			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	TRACS-Basic					0		0		0	
(U)	New Threat (class 6) CM Development					393		562		0	
(U)	Block 30 Signals Update Development					150		125		0	
(U)	Block 30 Waveform Update Development					150		125		0	
(U)	Total					693		812		0	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Sanders	SS/CPIF	1QFY99		TBD	27,099	468	562	0	0	28,129
	Raytheon Ft Wayne	SS/CPIF	N/A		23,543	23,535	0	0	0	0	23,535
	GTE	SS/CPIF	N/A		8,875	8,875	0	0	0	0	8,875
<u>Support and Management Organizations</u>											
	Misc (SPO, Labs)	Various	N/A			3,172	25	25	0	0	3,222
<u>Test and Evaluation Organizations</u>											
	EPG, Ft. Huachuca NM	MIPR	2QFY99			500	125	125	0	0	750
	WTR	616	2QFY99			500	75	100	0	0	675
(U) <u>Government Furnished Property:</u>											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	Misc					1,594	0	0	0	0	1,594

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE June 2001				
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT				
05 - Engineering and Manufacturing Development	0604270F EW Development	2462				
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
<u>Test and Evaluation Property</u>						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	61,103	468	562	0	0	62,133
Subtotal Support and Management	3,172	25	25	0	0	3,222
Subtotal Test and Evaluation	1,000	200	225	0	0	1,425
Total Project	65,275	693	812	0	0	66,780

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001																								
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3891																							
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																						
3891	Advanced IR Counter Measures (AIRCM)	39,635	4,366	991	3,343	3,351	3,425	3,498	3,570	Continuing	TBD																						
<p>*Advanced Infrared Countermeasures (AIRCM) now includes two subprojects: Advanced Strategic and Tactical IR Expendables (ASTE), and software upgrade to AAR-47. The Air Force terminated its participation in Common Missile Warning System (CMWS) in the FY02 budget cycle. The Large Aircraft IRCM/Laser Infrared Flyout Experiment (LAIRCM/LIFE) transferred to PE 0603270F in FY99, FY00 and FY01.</p> <p>**The FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) <u>A. Mission Description</u> The Advanced IR Countermeasure (AIRCM) project contains related aircraft self-protection efforts aimed at increasing aircraft survivability against the increasing threat of sophisticated surface-to-air and air-to-air missiles, which may employ such features as next-generation electro-optics or dual IR and radio frequency seekers. AIRCM currently consists of two efforts, the USAF/USN Advanced Strategic and Tactical IR Expendables (ASTE) program, and USAF/USN AAR-47 software upgrade. The LAIRCM/LIFE effort and funding was transferred to PE 63270F for FY99, FY00, and FY01 to support ongoing Advanced Technology Demonstration study at Wright Lab. Air Force participation in the CMWS program was terminated in the FY02 budget process. ASTE will provide advanced IR expendable countermeasures. ASTE flares will be functionally compatible with existing ALE-40, 45, and 47 dispenser systems and will be employed across multiple USAF and USN weapon systems. The AAR-47 software upgrade supports two configurations of software intended to decrease the AAR-47 false alarm rate and improve threat detection for all large body aircraft.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <table border="0"> <tr> <td>(U) \$36,873</td> <td>CMWS (Common Missile Warning System) Program Costs</td> </tr> <tr> <td>(U) \$308</td> <td>ASTE Development</td> </tr> <tr> <td>(U) \$235</td> <td>ASTE Test and Evaluation</td> </tr> <tr> <td>(U) \$288</td> <td>ASTE Modeling and Analysis</td> </tr> <tr> <td>(U) \$445</td> <td>ASTE Mission Support</td> </tr> <tr> <td>(U) \$765</td> <td>ASTE identified for Omnibus</td> </tr> <tr> <td>(U) \$23</td> <td>LAIRCM/LIFE Mission Support</td> </tr> <tr> <td>(U) \$200</td> <td>AAR-47 Modeling & Analysis</td> </tr> <tr> <td>(U) \$236</td> <td>AAR-47 Algorithm Development</td> </tr> <tr> <td>(U) \$262</td> <td>AAR-47 Verification & Validation</td> </tr> <tr> <td>(U) \$39,635</td> <td>Total</td> </tr> </table>												(U) \$36,873	CMWS (Common Missile Warning System) Program Costs	(U) \$308	ASTE Development	(U) \$235	ASTE Test and Evaluation	(U) \$288	ASTE Modeling and Analysis	(U) \$445	ASTE Mission Support	(U) \$765	ASTE identified for Omnibus	(U) \$23	LAIRCM/LIFE Mission Support	(U) \$200	AAR-47 Modeling & Analysis	(U) \$236	AAR-47 Algorithm Development	(U) \$262	AAR-47 Verification & Validation	(U) \$39,635	Total
(U) \$36,873	CMWS (Common Missile Warning System) Program Costs																																
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(U) \$262	AAR-47 Verification & Validation																																
(U) \$39,635	Total																																
Project 3891		Page 13 of 33 Pages					Exhibit R-2A (PE 0604270F)																										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001																														
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																														
05 - Engineering and Manufacturing Development	0604270F EW Development	3891																														
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <tr><td style="width:10%;">(U) \$1,239</td><td>ASTE Flare Development</td></tr> <tr><td>(U) \$264</td><td>ASTE Test & Evaluation</td></tr> <tr><td>(U) \$100</td><td>ASTE Verification and Validation</td></tr> <tr><td>(U) \$230</td><td>ASTE Modeling & Simulation</td></tr> <tr><td>(U) \$481</td><td>ASTE Mission Support</td></tr> <tr><td>(U) \$994</td><td>LAIRCM/LIFE</td></tr> <tr><td>(U) \$74</td><td>CMWS Residual</td></tr> <tr><td>(U) \$560</td><td>AAR-47 hardware and software upgrades</td></tr> <tr><td>(U) \$424</td><td>AAR-47 Modeling and Analysis / Hardware test capability</td></tr> <tr><td>(U) \$0</td><td>AAR-47 Algorithm development / live fire testing / data collection</td></tr> <tr><td>(U) \$4,366</td><td>Total</td></tr> </table> <p>The following net transactions are not reflected in the FY01 program total: BTR= +\$500K and SBIR -\$139K. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table style="width:100%; border: none;"> <tr><td style="width:10%;">(U) \$286</td><td>AAR-47 hardware and software upgrades</td></tr> <tr><td>(U) \$500</td><td>AAR-47 Modeling and Analysis / Hardware test capability</td></tr> <tr><td>(U) \$205</td><td>AAR-47 Algorithm development / live fire testing / data collection</td></tr> <tr><td>(U) \$991</td><td>Total</td></tr> </table> <p>(U) <u>B. Project Change Summary</u></p> <p>\$19.8M Congressional reduction in FY01 due to Air Force termination of participation in the CMWS program. \$2.7M below threshold reprogramming in FY00 from LAIRCM PE64270F to PE63270F to support LAIRCM/LIFE efforts. \$3.999M below threshold reprogramming in FY00 from CMWS PE64270F to PE64012F for higher Air Force priorities.</p>			(U) \$1,239	ASTE Flare Development	(U) \$264	ASTE Test & Evaluation	(U) \$100	ASTE Verification and Validation	(U) \$230	ASTE Modeling & Simulation	(U) \$481	ASTE Mission Support	(U) \$994	LAIRCM/LIFE	(U) \$74	CMWS Residual	(U) \$560	AAR-47 hardware and software upgrades	(U) \$424	AAR-47 Modeling and Analysis / Hardware test capability	(U) \$0	AAR-47 Algorithm development / live fire testing / data collection	(U) \$4,366	Total	(U) \$286	AAR-47 hardware and software upgrades	(U) \$500	AAR-47 Modeling and Analysis / Hardware test capability	(U) \$205	AAR-47 Algorithm development / live fire testing / data collection	(U) \$991	Total
(U) \$1,239	ASTE Flare Development																															
(U) \$264	ASTE Test & Evaluation																															
(U) \$100	ASTE Verification and Validation																															
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(U) \$205	AAR-47 Algorithm development / live fire testing / data collection																															
(U) \$991	Total																															
Project 3891	Page 14 of 33 Pages	Exhibit R-2A (PE 0604270F)																														

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development				PROJECT 3891		
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) Other APPN											
(U) Procurement of Ammunition, AF, PE 28030F, ASTE flares, BA-1, Appn 3011	4,835	4,779	4,815	4,806	4,767	4,873	5,269	5,775	Continuing	Continuing	
(U) RDT&E, AF, PE 63270F, EO/IR Warning & Countermeasures, BA-3, BPAC 691X, Funds multiple EO/IR Science and Technology projects	14,203	10,247	12,349	12,673	13,554	13,532	12,560	12,806	Continuing	Continuing	
(U) D. Acquisition Strategy											
The planned acquisition strategy is competitive cost-plus award fee.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U) ASTE DT&E - Fighter								*			
(U) ASTE OT&E - Fighter									X		
(U) ASTE OT&E - Covert				*							
(U) ASTE MS III - Fighter									X		
(U) ASTE MS III - Covert				*							
(U) ASTE PDR - Transport (Completed Apr 99)											
(U) ASTE CDR - Transport							*				
(U) ASTE DT&E-Transport									X		
(U) ASTE OT&E -Transport										X	
(U) AAR-47 Analyze Data (V21.2)				*							
Project 3891	Page 15 of 33 Pages						Exhibit R-2A (PE 0604270F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3891		
(U) E. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	AAR-47 SW Upgrade Contract (V22)											X
(U)	AAR-47 Collect/Validate Data (V22)											X
* - Denotes a completed event X - Denotes a planned event												
Project 3891				Page 16 of 33 Pages				Exhibit R-2A (PE 0604270F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604270F EW Development			3891		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	CMWS Joint Program Costs				27,089		0		0	
(U)	CMWS F-16 aircraft (Group A) EMD integration				3,008		0		0	
(U)	CMWS Test and Evaluation				4,676		0		0	
(U)	CMWS Mission Support				200		74		0	
(U)	CMWS Identified for Omnibus				1,900		0		0	
(U)	ASTE Prime Contract Costs				308		1,239		0	
(U)	ASTE Test & Evaluation				235		264		0	
(U)	ASTE Verification & Validation				0		100		0	
(U)	ASTE Modeling and Simulation				288		230		0	
(U)	ASTE Mission Support				445		481		0	
(U)	ASTE Identified for Omnibus				765		0		0	
(U)	LAIRCM/LIFE				23		994		0	
(U)	AAR-47 Hardware and Software Upgrades				0		560		286	
(U)	AAR-47 Modeling & Analysis / Hardware test capability				200		424		500	
(U)	AAR-47 Algorithm Development / live fire testing / data collection				236		0		205	
(U)	AAR-47 Verification & Validation				262		0		0	
(U)	Total				39,635		4,366		991	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604270F EW Development				PROJECT 3891		
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
CMWS Sanders	CAAF/CPFF	Sep 95	60,099	60,099	34,699	13,700	0	0	0	48,399
CMWS Integration	CPAF	Various	52,259	52,259	24,497	3,008	0	0	0	27,505
ASTE - BAE	CPAF	Nov 95	8,324	8,324	16,640	308	1,239	0	Continuing	TBD
LIFE - Lockheed Martin	CPFF	TBD	3,400	0	0	0	994	0	0	994
Akron OH										
AAR-47 - GTRI (V21.2)	T&M	2Q99	0	0	0	698	0	0	0	698
AAR-47 - GTRI (V22)	T&M	1Q01	0	0	0	0	984	786	Continuing	TBD
<u>Support and Management Organizations</u>										
CMWS - CAS INC	CPFF	Sept 95		28,619	19,028	3,364	0	0	0	22,392
CMWS - MWS	T&M	Jun 97		13,144	9,524	1,250	0	0	0	10,774
CMWS - Mod & Sim	Various			4,116	2,596	1,445	0	0	0	4,041
CMWS -Misc	Various			38,330	8,199	12,206	74	0	0	20,479
ASTE M&A - SAIC	PR	Various		2,554	1,454	288	230	0	Continuing	TBD
ASTE V&V - Mac B	PR	Various		789	359	0	100	0	Continuing	TBD
ASTE - Misc	Various	Various		Continuing	36,304	445	481	0	Continuing	TBD
LIFE Flight A/C Support - contractor	TBD	June 99		1,416	0	0	0	0	0	0
TBD										
LIFE - Misc					0	23	0	0	0	23
<u>Test and Evaluation Organizations</u>										
AIRCM Identified for	0	0		0	0	2,665	0	0	0	2,665
Omnibus										
ASTE - 46TW	Various	Various		2,897	897	235	264	0	Continuing	TBD
ASTE - Misc	Various	Various		Continuing	282	0	0	0	Continuing	TBD
46TW/AFFTC/ BAE Support	Various	Various		30,114	17,092	0	0	0	Continuing	TBD
AAR-47 Live Fire Test / Data Collection						0	0	205	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT
05 - Engineering and Manufacturing Development			0604270F EW Development			3891
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development		75,836	17,714	3,217	786	TBD
Subtotal Support and Management		77,464	19,021	885	0	TBD
Subtotal Test and Evaluation		18,271	2,900	264	205	TBD
Total Project		171,571	39,635	4,366	991	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 3945	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
3945 RF Towed Decoy Systems	15,373	25,968	34,928	42,499	52,621	40,413	33,932	34,652	Continuing	TBD	
<p>* RDT&E funds are used for development, risk reduction, integration, flight test, and procurement of lab and test assets. Hardware is purchased by component, not as a complete upgrade kit, therefore aircraft funding does not completely portray the IDECM Programs.</p> <p>**The FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) A. Mission Description This project develops, integrates and tests radio frequency (RF) towed decoy systems. RF towed decoys are low cost RF countermeasures that provide increased survivability against monopulse, semi-active, and active RF missile threats during the terminal portion of an engagement. This project developed, integrated and tested the Joint Air Force and Navy-led ALE-50 Advanced Airborne Expendable Decoy program. The Air Force is currently participating in the Navy-led Integrated Defensive Electronic Countermeasures (IDECM) program to jointly develop a common techniques generator (TG) and a Fiber Optic Towed Decoy (FOTD). Air Force funding pays for unique Air Force IDECM development costs, integration and test of an FOTD subsystem on the F-15, IDECM RF Countermeasures (RFCM) field and test support for host platform integration activities, and alternative FOTD risk reduction activities. The Defensive Systems Upgrade Program (DSUP) program funds integration and test of IDECM hardware on the B-1B.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$8,403 IDECM Common (U) \$4,423 IDECM F-15 (U) \$2,547 Mission and Test Support (U) \$0 No Activity (U) \$15,373 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$8,599 IDECM Common (U) \$14,150 IDECM F-15 (U) \$3,219 Mission and Test Support (U) \$25,968 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR= \$1108K, SBIR= -\$825K. These transactions are not reflected in other sections of the RDocs where an FY01 total is shown.</p>											
Project 3945	Page 20 of 33 Pages					Exhibit R-2A (PE 0604270F)					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 3945
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(U) **A. Mission Description Continued**

(U) FY 2002 (\$ in Thousands)

(U) \$2,438	IDECM Common
(U) \$27,939	IDECM F-15
(U) \$4,551	Mission and Test Support
(U) \$34,928	Total

(U) **B. Project Change Summary**

The IDECM program was restructured in June 98 and July 99 due to significant contract cost overruns. Impact to the USAF is a \$31M total increase in USAF IDECM RFCM contract cost share. Funding for the overrun was sourced from F-15 IDECM integration and resulted in delay to F-15 IDECM EMD. Due to F-15 IDECM slow down \$6.6M was removed from FY01 RDT&E funding during the FY01 ABES. A FY00 Congressional reduction of \$15M was also sourced from F-15 integration. As a result of the budget constraints, F-15 IDECM EMD activities were severely reduced in FY00 and the F-15 EMD program was rephased. F-15 IDECM funding in FY01 will support return to full EMD to support F-15 IDECM Milestone III production decision in FY06. Additionally, a zero balance transfer from F-15 IDECM production to RDT&E, resulted in a net increase to IDECM RDT&E funding of \$8.184M in FY03, \$16.681M in FY04 and \$6.983M in FY05. The B-1B DSUP program was zeroed out during the FY02 POM. As a result, all B-1 IDECM Initial Spares funds and IDECM procurement funds relating to the B-1B (BP-11) and decoys (BP-17) were removed from the program.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										
(U) Other APPN										
(U) Aircraft Procurement, AF PE 27442F, War Consumable (RF towed decoys), BP-17	103,950	46,832	22,851	34,230	40,240	44,641	75,343	76,928	Continuing	Continuing
(U) Aircraft Procurement, AF PE 27442F, Mods (B-1B), BP-11	0	0	0	0	0	0	0	0	Continuing	Continuing
(U) Aircraft Procurement, AF PE 27442F, Mods (F-15), BP-11	0	0	0	0	0	0	22,873	23,358	Continuing	Continuing

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001																																																																																																																																																																																			
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<p>(U) <u>D. Acquisition Strategy</u> The acquisition strategy for IDECM RDT&E was competitive, cost-plus incentive fee /award fee. The production contract will be sole source for first two lots with full and open competition in lots three and beyond.</p>																																																																																																																																																																																													
<p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th style="text-align: left;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) 1x 4 Dual Compatible Launcher Production Decision</td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) USN Operational Assessment Developmental Test & Evaluation (T&E) Start</td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) USN IDECM DT&E Assist Start</td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) B-1B Defensive Systems Upgrade Program (DSUP) Flight Test Ready Review</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) F-15 FOTD Critical Design Review (CDR) (Group A Hardware)</td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) F-15 FOTD PDR (Software)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) F-15 FOTD CDR (Software)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> </tr> <tr> <td>(U) F-15/FOTD TRR (2Q04)</td> <td></td> </tr> <tr> <td>(U) B-1B DSUP Developmental/Operational T&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) F-15/FOTD DT/OT&E (3Q04)</td> <td></td> </tr> <tr> <td>(U) USN IDECM Operational Evaluation (3Q02)</td> <td></td> <td style="text-align: center;">X</td> </tr> <tr> <td>(U) USN IDECM Low Rate Initial Production I (2Q01)</td> <td></td> <td style="text-align: center;">*</td> </tr> <tr> <td>(U) USN IDECM Milestone III (1Q03)</td> <td></td> </tr> </tbody> </table> <p>Note: See Change Summary * - Denotes a completed event X - Denotes a planned event</p>													<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>			1	2	3	4	1	2	3	4	1	2	3	4	(U) 1x 4 Dual Compatible Launcher Production Decision	*											(U) USN Operational Assessment Developmental Test & Evaluation (T&E) Start		*										(U) USN IDECM DT&E Assist Start		*										(U) B-1B Defensive Systems Upgrade Program (DSUP) Flight Test Ready Review							X					(U) F-15 FOTD Critical Design Review (CDR) (Group A Hardware)	*											(U) F-15 FOTD PDR (Software)							X					(U) F-15 FOTD CDR (Software)									X			(U) F-15/FOTD TRR (2Q04)												(U) B-1B DSUP Developmental/Operational T&E								X				(U) F-15/FOTD DT/OT&E (3Q04)												(U) USN IDECM Operational Evaluation (3Q02)											X	(U) USN IDECM Low Rate Initial Production I (2Q01)											*	(U) USN IDECM Milestone III (1Q03)											
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Project 3945			Page 22 of 33 Pages			Exhibit R-2A (PE 0604270F)																																																																																																																																																																																							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 3945			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Integrated Defensive Electronic Countermeasures (IDECM) Common					8,403		8,599		2,438	
(U)	IDECM F-15					4,423		14,150		27,939	
(U)	Mission and Test Support					2,547		3,219		4,551	
(U)	Total					15,373		25,968		34,928	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
USAF IDECM: Development		CPAF	Nov 95	47,733	47,733	39,355	2,766	5,612	0	Continuing	TBD
BAE Development E-Systems, Goleta (ESGD)		CPIF	Jan 96	19,674	19,674	12,901	4,388	2,085	300	Continuing	TBD
F-15 IDECM Integration- McAir/Northrop/Lockheed Martin		CPFF	Aug 97	177,516	177,516	22,736	4,423	14,150	27,939	Continuing	TBD
IDECM Misc Development Contracts		Misc		6,509	6,509	4,036	1,249	902	2,138	Continuing	TBD
<u>Support and Management Organizations</u>											
ASC/SM/YF - IDECM		Misc	As required	N/A		3,102	1,184	2,004	3,451	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
AFOTEC Edwards				N/A		1,600	0	0	0	Continuing	TBD
Eglin				N/A		156	500	846	600	Continuing	TBD
NRL				N/A		0	752	339	500	Continuing	TBD
NRL				N/A		0	111	30	0	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		
				June 2001		
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
05 - Engineering and Manufacturing Development		0604270F EW Development			3945	
(U) Performing Organizations Continued:						
* The funding prior to FY98 includes only FY97. The funding prior to FY97 was transferred from a classified PE. The total program and EACs include funding from FY97 and out because of the classified PE in FY96 and prior.						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Total</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Subtotals</u>						
Subtotal Product Development		79,028	12,826	22,749	30,377	TBD
Subtotal Support and Management		3,102	1,184	2,004	3,451	TBD
Subtotal Test and Evaluation		1,756	1,363	1,215	1,100	TBD
Total Project		83,886	15,373	25,968	34,928	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 4832
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4832 Precision Location and Identification (PLAID)	10,947	13,376	1,827	0	0	0	0	0	0	30,320
<p>(U) <u>A. Mission Description</u> Precision Location and Identification (PLAID) will improve aircrew situational awareness by providing accurate ground emitter location and unambiguous identification. Threat systems can disrupt or negate operational missions, even without firing, by requiring aircrew reactions that affect mission objectives. Improved threat information from a modernized Radar Warning Receiver (RWR) will assist the aircrews in determining precise threat range/directions and provide option responses short of mission abort or violent aircraft maneuvering. Knowing threat location will help an aircrew respond 'real-time' to threats by providing accurate information to allow the aircrews to reroute around hostile areas. PLAID will utilize existing aircraft RWR antennas and wiring (Group A hardware). PLAID development is currently focused on the ALR-69 RWR but PLAID technology can also be applied to other RWRs. This project also contains funding for aircraft survivability enhancements not related to the PLAID program.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$10,565 Engineering and Manufacturing Development (EMD), Hardware/Software design/development/test (U) \$182 Program Office Support (U) \$200 System Engineering Support (U) \$10,947 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$9,426 Engineering and Manufacturing Development (EMD), Hardware/Software design/development/test (U) \$250 Program Office Support (U) \$200 System Engineering Support (U) \$3,500 Survivability enhancements (non-PLAID projects): \$2.5M for ALR-56C processor upgrade, \$0.7M for Comet Pod force development evaluation, and \$0.3M for contractor support efforts to host Pouncer 2 technology on a platform. (U) \$13,376 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR= -421K, and SBIR= -416K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p>										
Project 4832			Page 25 of 33 Pages				Exhibit R-2A (PE 0604270F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 4832			
(U) A. Mission Description Continued											
(U) FY 2002 (\$ in Thousands)											
(U)	\$250	Program Office Support									
(U)	\$200	System Engineering Support									
(U)	\$366	SOF C-130 SPD Support									
(U)	\$1,011	Ground and Flight Test Support									
(U)	\$1,827	Total									
(U) B. Project Change Summary											
Congress added \$4.5M in FY99 and \$11.5M in FY00 to PE64270F to transition PLAID from an advanced technology demonstration to EMD. Congress added \$10.0M in FY01 for PLAID EMD and \$3.5M in FY01 for other survivability enhancements (ALR-56C processor upgrade, Comet Pod, and contractor support).											
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	AF RDT&E	0	0	0	0	0	0	0			
(U)	PE44011F Special Operations Forces	0	1,109	0	0	0	0	0	0	1,109	
(U)	PE27442F Common ECM Equipment			10,057	10,358	11,002	11,587	11,934	Continuing	TBD	
(U) D. Acquisition Strategy											
Acquisition will be accomplished through full and open competitive procedures using source selection processes for award of contract. Contract award is scheduled for July 2001.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	
(U)	Program Management Directive Approval									*	
(U)	Milestone II Decision			*							
(U)	Acquisition Strategy Approved					*					
(U)	Request for Proposal Release						*				
Project 4832				Page 26 of 33 Pages				Exhibit R-2A (PE 0604270F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 4832			
(U) E. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Source Selection Process Complete							X					
(U)	Contract Award							X					
(U)	Design Review								X				
(U)	Integrated Defensive Avionics Lab									X			
(U)	Test Readiness Review										X		
(U)	C-130 Combined Development/Operational Test and Evaluation Start												X
	* - Denotes a completed event												
	X - Denotes a planned event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 4832		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Program Office Support				182		250			250
(U)	SOF C-130 Testing				0		0			1,011
(U)	SOF C-130 SPD Support				0		0			366
(U)	System Engineering Support				200		200			200
(U)	Engineering and Manufacturing Development, Hardware/Software design/development/test				10,565		9,426			0
(U)	Other Survivability Enhancements (ALR-56C processor upgrade, Comet Pod, and contractor support)				0		3,500			0
(U)	Total				10,947		13,376			1,827
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
WR-ALC/LNRC/ TBD	Contractor Full and open competition/ CPAF	TBD	TBD	TBD	4,170	10,565	9,426	0	0	24,161
Survivability Enhancement Organizations	WR-ALC/LN for ALR-56C processor upgrade; ASC/SMN for Comet Pod	TBD/May 01	TBD	TBD	0	0	3,500	0	0	3,500

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 4832		
(U) Performing Organizations Continued:										
<u>Support and Management Organizations</u>										
Engineering/McCauley Brown	616	Sep 01	TBD	TBD	0	200	200	200	0	600
Program Office	TBD	Sep 01	TBD	TBD	0	182	250	250	0	682
<u>Support/LNRC</u>										
SOF C-130 SPD	616	Oct 01	TBD	TBD	0	0	0	366	0	366
<u>Test and Evaluation Organizations</u>										
Western Test Range	616	Jun 01	TBD	TBD	0	0	0	261	0	261
Eglin Test Range	616	Oct 01	TBD	TBD	0	0	0	750	0	750
(U) Government Furnished Property:										
<u>Contract</u>										
<u>Method/Type</u>										
<u>Award or</u>										
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					4,170	10,565	12,926	0	0	27,661
Subtotal Support and Management					0	382	450	816	0	1,648
Subtotal Test and Evaluation					0	0	0	1,011	0	1,011
Total Project					4,170	10,947	13,376	1,827	0	30,320

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604270F EW Development	PROJECT 8462
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
8462 MALD	0	5,152	0	0	0	0	0	0	0	5,152

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**

The Miniature Air Launched Decoy (MALD) is a low-cost decoy to stimulate enemy integrated air defenses (IADS) for detection, location, and both lethal and non-lethal suppression activities. MALD transitioned from a DARPA ACTD to USAF program management in December 2000. The program element funds final corrective actions to the ACTD configuration to support ACC's 'Silver Bullet' production of approximately 100 MALD vehicles.

(U) **FY 2000 (\$ in Thousands)**

- (U) \$0 No Activity
- (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**

- (U) \$1,200 To complete retrofit of ACTD assets
- (U) \$200 AFMSS Upgrade
- (U) \$3,066 To complete pre-production enhancements and aircraft certification
- (U) \$686 Program Office Support
- (U) \$5,152 Total

The following transactions are not reflected in the FY01 program total: SBIR= -\$163K and a BTR= -\$46K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown

(U) **FY 2002 (\$ in Thousands)**

- (U) \$0 No Activity
- (U) \$0 Total

(U) **B. Project Change Summary**

Congressional add of \$1.2M in FY01 to aid transition from ACTD. FY01 RDT&E funding (\$5.152M) extended contract to correct engine deficiencies prior to the start of MALD 'Silver Bullet' production.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development					PROJECT 8462	
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) AF RDT&E											
(U) Other APPN (PE 27442F, BP 17)			5,000						Continuing	TBD	
(U) USAF S&T (PE 63270F)	1,500										
(U) OSD (PE 63750D) RDT&E	2,000	3,000									
(U) DARPA (PE 62702E) RDT&E	296										
ACC has requested procurement of approximately 100 MALD air vehicles in the ACTD configuration with engine fixes.											
(U) D. Acquisition Strategy											
FY01 RDT&E funding will extend developmental activities from the ACTD to refine engine design and reduce GPS/SAS interference prior to start of 'Silver Bullet' production of approximately 100 MALDs being requested by the Combat Air Forces. The acquisition will be a sole-source, fixed price incentive fee.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U) Complete Engine Fix Flight Testing											X
(U) SAS Phase 2								*			
(U) SAS Phase 3											X
(U) SAS Flight Test											X
(U) Container Redesign Complete									*		
(U) AFMSS rehost on PFPS											X
(U) Pyro/Hazard/Disposal							*				
(U) F-16 Tech Orders											X
(U) Silver Bullet Request for Proposal (RFP)										X	
(U) Silver Bullet Proposal Evaluation										X	
(U) Silver Bullet Production Decision										X	
(U) Silver Bullet Contract Award											X
Project 8462											
Page 31 of 33 Pages											
Exhibit R-2A (PE 0604270F)											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604270F EW Development			PROJECT 8462			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	To complete retrofit of ACTD assets					0		1,200		0	
(U)	To complete AFMSS upgrade					0		200		0	
(U)	To complete production enhancements and aircraft certification					0		3,066		0	
(U)	Program Office Support					0		686		0	
(U)	Total					0		5,152		0	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Northop Grumman - Ryan	CPFF	1 Nov 96	TBD	TBD	0	0	2,890	0	0	2,890
	Aeronautical Center										
	<u>Support and Management Organizations</u>										
	AAC/WMG					0	0	686	0	0	686
	<u>Test and Evaluation Organizations</u>										
	Eglin AFB					0	0	1,576	0	0	1,576
(U) <u>Government Furnished Property:</u>											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Product Development Property</u>										
	<u>Support and Management Property</u>										
	<u>Test and Evaluation Property</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE June 2001		
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
05 - Engineering and Manufacturing Development		0604270F EW Development				8462
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	0	0	2,890	0	0	2,890
Subtotal Support and Management	0	0	686	0	0	686
Subtotal Test and Evaluation	0	0	1,576	0	0	1,576
Total Project	0	0	5,152	0	0	5,152

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604328F Extended Range Cruise Missile (ERCM)					PROJECT 4978	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4978 ERCM Initiatives	0	39,633	40,235	82,957	71,952	16,947	2,019	86,632	0	340,375
Quantity of RDT&E Articles	0	0	0	12	0	0	0	0	0	0

RDT&E funding in FY06 and FY07 is programmed for Long Range Cruise Missile (LRCM).

Note: The FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) A. Mission Description

The Extended Range Cruise Missile (ERCM) is a FY01 New Start based on the Congressional Add in the FY01 Appropriations. Funding for FY2002 - FY2007 was moved to PE 0604328F from PE 0207323F (CALCM) for the development of the next Air Force conventional cruise missile. ERCM is a CSAF-directed effort to provide a longer range cruise missile to supplement the low conventional cruise missile inventory. An ERCM will be launched from bomber and potentially fighter aircraft and provide an adverse weather, day/night, air-to-surface, near-precision, standoff (outside theater defense) strike capability. An ERCM will provide low-risk, surprise air attacks against campaign critical targets, over a wide area, without extensive support packages, hostile territory over flight, or host nation support. An internal CSAF-directed review of all ERCM alternative is on-going and will be complete by 1st Quarter FY02. A program decision will be made by 1st Quarter FY02. In addition, a Nuclear Posture Review is expected in December 2001, which could indicate if there are Nuclear ALCMs available for conversion to CALCMs.

(U) FY 2000 (\$ in Thousands)

(U) \$0 No Activity
(U) \$0 Total

(U) FY 2001 (\$ in Thousands)

(U) \$39,633 Congressional Add - No activity due to further evaluation of ERCM alternatives
(U) \$39,633 Total

(U) FY 2002 (\$ in Thousands)

(U) \$40,235 Begin Development Activities
(U) \$40,235 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																								
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604328F Extended Range Cruise Missile (ERCM)			PROJECT 4978																																																								
<p>(U) <u>B. Budget Activity Justification</u> This program is reflected in Budget Activity 5, Engineering and Manufacturing Development (EMD) because the program has not received approval for full-rate production.</p>																																																															
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">0</td> <td style="text-align: center;">40,000</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td style="text-align: center;">-280</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td style="text-align: center;">-87</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">40,235</td> <td style="text-align: center;">340,375</td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">39,633</td> <td style="text-align: center;">40,235</td> <td style="text-align: center;">340,375</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> Funds for the ERCM were not requested in the FY01 PBR. Funds for ERCM were requested via the FY01 CSAF Unfunded Priority List (UPL), and were appropriated in the amount of \$40M. The ERCM program is funded from FY01 to FY05. Funding in FY06 and FY07 is programmed for Long Range Cruise Missile (LRCM).</p>										<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	0	0	0	0	(U) Appropriated Value	0	40,000			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions		-280			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions		-87			(U) Adjustments to Budget Years Since FY 2001 PBR	0	0	40,235	340,375	(U) Current Budget Submit/FY 2002 PBR	0	39,633	40,235	340,375
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																											
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<p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> </tr> <tr> <td>(U) Other APPN Missile Procurement (AF)</td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: center;">53,429</td> <td style="text-align: center;">145,170</td> <td style="text-align: center;">207,776</td> <td style="text-align: center;">132,831</td> <td style="text-align: center;">0</td> <td style="text-align: center;">539,206</td> </tr> </tbody> </table>										<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN Missile Procurement (AF)					53,429	145,170	207,776	132,831	0	539,206											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																					
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																						
(U) AF RDT&E																																																															
(U) Other APPN Missile Procurement (AF)					53,429	145,170	207,776	132,831	0	539,206																																																					
<p>(U) <u>E. Acquisition Strategy</u> Any major contracts within this program element are planned to be awarded through full and open competition. The Acquisition Strategy plans (i.e. Analysis of Alternatives, Request For Proposals, and development contract types) are TBD pending the results of the internal Air Force review of ERCM alternatives.</p>																																																															
Project 4978			Page 2 of 5 Pages			Exhibit R-2 (PE 0604328F)																																																									

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
05 - Engineering and Manufacturing Development					0604328F Extended Range Cruise Missile (ERCM)					4978				
(U) F. Schedule Profile														
		<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
(U)	Air Force ERCM alternatives review complete								X					
(U)	Nuclear Posture Review								X					
(U)	ERCM development activities begin										X			
(U)	X = Estimated completion													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604328F Extended Range Cruise Missile (ERCM)			4978		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Congressional Add					0		39,633		0
(U)	Major Contracts					0		0		38,985
(U)	Associated Contracts					0		0		0
(U)	Support Contracts					0		0		650
(U)	In-House					0		0		600
(U)	Test Support					0		0		0
(U)	Total					0		39,633		40,235
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
TBD	TBD	FY02	N/A	TBD	0	0	39,633	38,985	219,307	297,925
<u>Support and Management Organizations</u>										
SPO	MISC	Various	N/A	TBD	0	0	0	600	5,400	6,000
SPO Support Contractors	TBD	TBD	N/A	TBD	0	0	0	650	1,800	2,450
Aircraft SPO	PO	TBD	N/A	TBD	0	0	0	0	2,000	2,000
<u>Test and Evaluation Organizations</u>										
Other Acft Integ	PO	TBD	N/A	TBD	0	0	0	0	16,000	16,000
Test Wing	PO	TBD	N/A	TBD	0	0	0	0	16,000	16,000
(U) Government Furnished Property:										
<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
Project 4978										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604328F Extended Range Cruise Missile (ERCM)			PROJECT 4978		
(U) Government Furnished Property Continued:									
<u>Item</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u> <u>Vehicle</u>	<u>Award or</u> <u>Obligation</u> <u>Date</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Product Development Property</u>									
Pending Completion of Program Office Estimate	TBD	TBD	TBD	0	0	0	0	0	0
<u>Support and Management Property</u>									
Pending Completion of Program Office Estimate	TBD	TBD	TBD	0	0	0	0	0	0
<u>Test and Evaluation Property</u>									
Pending Completion of Program Office Estimate	TBD	TBD	TBD	0	0	0	0	0	0
<u>Subtotals</u>				<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development				0	0	39,633	38,985	219,307	297,925
Subtotal Support and Management				0	0	0	1,250	9,200	10,450
Subtotal Test and Evaluation				0	0	0	0	32,000	32,000
Total Project				0	0	39,633	40,235	260,507	340,375

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604329F Small Diameter Bomb					PROJECT 5006	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5006	Small Diameter Bomb	0	11,889	40,000	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	0

The FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 Small Diameter Bomb (SDB) is an Air Force ACAT 1C program providing an affordable solution to a variety of needs. SDB's ultimate objective to increase kills per sortie on current and future aircraft platforms addresses the following warfighter requirements: multiple kills per pass; multiple ordnance carriage; adverse weather, precision munitions capability; capability against hardened targets; reduced munitions footprint; increased weapons effectiveness against area targets; real-time target location and/or kill capability versus small/mobile targets; reduced susceptibility to camouflage, concealment and deception (CCD); minimized potential for collateral damage; and reduced susceptibility of munitions to countermeasures. Threshold aircraft for Phase I is the F-15E, with the F-16 and B-1 as the Phase 2 threshold platforms. Objective aircraft include the B-2, A-10, Joint Strike Fighter (JSF), F-22, F117, B-52, and the Unmanned Combat Aerial Vehicle (UCAV). SDB is currently in Pre-Component Advanced Development (CAD) with Milestone A in August, 2001.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$0 No Activity
 (U) \$0 Total

(U) **FY 2001 (\$ in Thousands)**
 (U) \$11,200 Start Component Advanced Development (CAD). CAD includes such tasks as design definition for SDB and carriage system, detailed program plan and proposal development, risk reduction efforts and demonstrated ability to meet key performance parameters (KPPs).
 (U) \$289 Establish program office support.
 (U) \$400 Establish mission support.
 (U) \$11,889 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																																							
		June 2001																																																							
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																							
05 - Engineering and Manufacturing Development	0604329F Small Diameter Bomb	5006																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$36,312 Continue Component Advanced Development (CAD). CAD includes such tasks as design definition for SDB and carriage system, detailed program plan and proposal development, risk reduction efforts and demonstrated ability to meet key performance parameters (KPPs).</p> <p>(U) \$105 Continue aircraft integration.</p> <p>(U) \$2,890 Continue program office support.</p> <p>(U) \$693 Continue mission support.</p> <p>(U) \$40,000 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is budget activity 5 - Engineering and Manufacturing Development, providing funding for the development of the Small Diameter Bomb.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0</td> </tr> <tr> <td>(U) Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">11,889</td> <td style="text-align: center;">40,000</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: center;">0</td> <td style="text-align: center;">11,889</td> <td style="text-align: center;">40,000</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>FY01: SDB originally received a Congressional add of \$12 million 'to accelerate development of a 250-pound MMC variant' in PE 604602F, Armament Ordnance (ARMORD).</p> <p>FY02: AF realignment of funds to continue Component Advanced Development.</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	0	0	0	0	(U) Appropriated Value					(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram					e. Rescissions					(U) Adjustments to Budget Years Since FY 2001 PBR	0	11,889	40,000	TBD	(U) Current Budget Submit/FY 2002 PBR	0	11,889	40,000	TBD
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																					
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Project 5006	Page 2 of 5 Pages	Exhibit R-2 (PE 0604329F)																																																							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604329F Small Diameter Bomb	PROJECT 5006
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(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E	9,309									9,309

The FY00 funding included in the AF RDT&E line reflects SDB funding which is included in PE 604602F, Armament Ordnance (ARMORD) designated as Miniaturized Munitions Capability (MMC). The remaining FY01-05 funding included in the AF RDT&E line is Lab funding to support SDB and is included in PE 603601F.

(U) **E. Acquisition Strategy**

All major contracts within this Program Element will be awarded through full and open competition. Two contractors will be selected for the 24 month CAD phase using Firm Fixed Price contracts. Downselect to one contractor will occur prior to System Development and Demonstration (SDD). There will be two SDDs; a fixed target variant and a mobile target variant. SDD will be a Cost Plus Award Fee contract. This approach allows higher risk, less mature technologies to be fielded in an evolutionary fashion. Leverage of Air Force Research Laboratory (AFRL) funding and resources will support the CAD phase.

The government is buying the SDB based on a contractor-developed, government-approved System Performance Specification (SPS) which will become contractually binding at downselect. The contractor will assume Total System Performance Responsibility (TSPR) as defined in the SPS and warrants system performance for 20 years. Accordingly, the contractor is responsible not only for the design of the missile system, but also for planning and executing the Development Test and Evaluation (DT&E) program to verify the system performance. In its role as facilitator and advisor to the contractor, the government formally arranges and funds the use of government flight test support for DT&E. Although funded by the government, flight test support funds are part of the negotiated commitment between the contractor and the government ensuring the contractor is able to execute the DT&E program according to the scope of the SDD contract.

(U) **F. Schedule Profile**

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Milestone A												
(U) CAD Contract Award												
(U) Milestone B												
(U) SDD Contract Award												
X - Planned Event												
* - Completed Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604329F Small Diameter Bomb			PROJECT 5006				
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Major Contracts							11,200		36,312	
(U)	Assoc Contracts							0		105	
(U)	Support Contracts							289		2,890	
(U)	In-House							400		693	
(U)	Test Support							0		0	
(U)	Total							11,889		40,000	
FY00 dollars found in PE 604602F.											
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>							
<u>Product Development Organizations</u>											
CAD Ktr 1 Contract	FFP	Sep-01	43,753	43,753	0	0	5,600	18,156	Continuing	TBD	
CAD Ktr 2 Contract	FFP	Sep-01	43,753	43,753	0	0	5,600	18,156	Continuing	TBD	
SDD 1 Contract	CPAF	Oct-03	112,876	112,876	0	0	0	0	Continuing	TBD	
SDD 2 Contract	CPAF	Oct-05	218,726	218,726	0	0	0	0	Continuing	TBD	
<u>Support and Management Organizations</u>											
F-22 SPO	PO	Aug 99	N/A	N/A	0	0	0	0	0	0	
F-15 SPO	PO	Oct-01	N/A	N/A	0	0	0	105	Continuing	TBD	
Other A/C SPOs	PO	Various	N/A	N/A	0	0	0	0	Continuing	TBD	
Sverdrup Inc.	C/CPAF	Jan-96, Jun-01	N/A	N/A	0	0	289	1,188	Continuing	TBD	
Other	Misc	Various	N/A	N/A	0	0	400	2,395	Continuing	TBD	
<u>Test and Evaluation Organizations</u>											
46 TW	PO	Mar-00	N/A	N/A	0	0	0	0	Continuing	TBD	
Project 5006											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604329F Small Diameter Bomb			PROJECT 5006	
(U) Government Furnished Property:								
	<u>Contract</u>							
	<u>Method/Type</u>	<u>Award or</u>						
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Product Development Property</u>								
Not Applicable								
<u>Support and Management Property</u>								
Not Applicable								
<u>Test and Evaluation Property</u>								
Not Applicable								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
Subtotal Product Development				0	0	11,200	36,312	TBD
Subtotal Support and Management				0	0	689	3,688	TBD
Subtotal Test and Evaluation				0	0	0	0	TBD
Total Project				0	0	11,889	40,000	TBD
FY01: SDB originally received a Congressional add of \$12 million 'to accelerate development of a 250-pound MMC variant' in PE 604602F, Armament Ordnance (ARMORD).								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD					PROJECT 3616		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3616	SBIRS High Element EMD	400,348	563,967	405,229	334,753	270,531	197,390	246,625	228,855	292,419	4,249,767
	Quantity of RDT&E Articles	0	0	1	1	1	1	0	0	0	4
NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.											
(U) A. Mission Description (U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies to enhance detection; improve reporting of intercontinental ballistic missiles, submarine launched ballistic missiles, and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. SBIRS also supports Battlespace Characterization and Technical Intelligence. The SBIRS System provides increased detection and tracking performance in order to meet requirements in US Space Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Orbits (GEO), Highly Elliptical Orbits (HEO) and Low Earth Orbits (LEO) and an integrated centralized ground station serving all SBIRS space elements and Defense Support Program (DSP) satellites. This Program Element funds the GEO & HEO portions of SBIRS with their associated ground elements.											
(U) FY 2000 (\$ in Thousands) (U) \$381,168 Continued EMD contracts for Space and Ground segment development (includes GFE, GEO Development, GEO 1&2 integration and test, HEO development/fabrication, Ground System development, System Engineering and Program Management, and Host SPO support) (U) \$6,053 Continued System Program Office Support (U) \$13,127 Continued Technical analysis and independent verification and validation of contractor by FFRDC. (U) \$400,348 Total											
(U) FY 2001 (\$ in Thousands) (U) \$544,289 Continued EMD contracts for Space and Ground segment development (includes GFE, GEO Development, GEO 1&2 build, GEO 1&2 integration and test, HEO development/production, Ground System development, System Engineering and Program Management, and Host SPO support) (U) \$3,397 Continue System Program Office Support (U) \$16,281 Continue Technical analysis and independent verification and validation of contractor by FFRDC. (U) \$563,967 Total											
Project 3616				Page 1 of 6 Pages				Exhibit R-2 (PE 0604441F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																																							
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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																							
05 - Engineering and Manufacturing Development	0604441F Space Based Infrared Systems (SBIRS) High EMD	3616																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u> The following net transactions are not reflected in the FY01 program total: BTR= -\$676K, SBIR= -\$15,736K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$381,402 Continue EMD contracts for Space and Ground segment development (includes GFE, continued GEO Development, GEO 1&2 integration, assembly and test, HEO development/production, HEO integration, assembly, and test, Ground System development, System Engineering and Program Management, and Host SPO support)</p> <p>(U) \$5,714 Continue System Program Office Support</p> <p>(U) \$18,113 Continue technical analysis and independent verification and validation of contractor by FFRDC</p> <p>(U) \$405,229 Total</p> <p>Changes from FY01 PBR reflect fact-of-life changes in travel, Assistance and Advisory Services (A&AS), and negotiated contract costs.</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>(U) This program is assigned to Budget Activity 5, Engineering and Manufacturing Development because it funds the EMD activities for the SBIRS High program.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">328,653</td> <td style="text-align: right;">569,188</td> <td style="text-align: right;">389,879</td> <td style="text-align: right;">3,382,241</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">420,653</td> <td style="text-align: right;">569,188</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-177</td> <td style="text-align: right;">-3,984</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-1,628</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-18,500</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td></td> <td style="text-align: right;">-1,237</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">15,350</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">400,348</td> <td style="text-align: right;">563,967</td> <td style="text-align: right;">405,229</td> <td style="text-align: right;">4,249,767</td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	328,653	569,188	389,879	3,382,241	(U) Appropriated Value	420,653	569,188			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-177	-3,984			b. Small Business Innovative Research	-1,628				c. Omnibus or Other Above Threshold Reprogram	-18,500				d. Below Threshold Reprogram					e. Rescissions		-1,237			(U) Adjustments to Budget Years Since FY 2001 PBR			15,350		(U) Current Budget Submit/FY 2002 PBR	400,348	563,967	405,229	4,249,767
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																					
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<p>Project 3616 Page 2 of 6 Pages Exhibit R-2 (PE 0604441F)</p>																																																									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD	PROJECT 3616
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(U) C. Program Change Summary (\$ in Thousands) Continued

(U) Significant Program Changes:

- (U) \$18.5M of FY00 funds were reprogrammed to the Operations and Maintenance (O&M) appropriation to field SBIRS High Increment 1 ground system.
- (U) FY02-FY07 funds were added to increase the acquisition stability of the program based on a new AF Cost Analysis Improvement Group (CAIG) estimate.
- (U) FY06-FY07 funds were added in the cost to complete for estimated Block II satellite upgrade/replenishment costs.
- (U) The Integrated Training Suite/SBIRS Simulator Phase 1 was previously broken out separately in the R-2 Exhibit's mission description, but is now included in the EMD contracts line since it is definitized. The fiscal year breakout is as follows: FY01 \$9.9M, FY02 \$16.7M.
- (U) SBIRS Increment 1 IOC, consolidation of existing DSP ground stations into a single CONUS ground station, is currently scheduled for 1QFY02.
- (U) FY03-FY07 funds were added to address identified risk areas, Systems Engineering and Software Development, of the program to reflect the OSD CAIG estimate.
- (U) FY01-FY02 \$2.3M increases in 'System Program Office Support' reflect fact-of-life adjustments for overall SBIRS SPO support.

(U) D. Other Program Funding Summary (\$ in Thousands)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Missile Procurement (PE 0305915F, BA-05, P-30)	0	0	93,752	481,020	0	6,968	15,652	17,262	0	614,654
(U) Other Procurement (PE 0305915F, BA-03, P-55)	0	0	54,347	0	0	0			0	54,347
(U) Related RDT&E:										
(U) PE 305911F - DSP (BA 07, R-187)	7,708	9,374	6,363	6,639	0	0	0	0	0	1,922,136
(U) PE 604442F - SBIRS Low PDRR (BA05, R-68)	218,088	233,545								439,499

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001					
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604441F Space Based Infrared Systems (SBIRS) High EMD				PROJECT 3616				
(U) D. Other Program Funding Summary (\$ in Thousands)												
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
SBIRS Low transferred to BMDO												
(U) E. Acquisition Strategy												
The pre-EMD SBIRS contracts were competed in full and open competition. Two contracts were awarded to Lockheed/Loral/Aerojet and Hughes/TRW in 1994 for the pre-EMD phase. A single contract was awarded to Lockheed Martin in 1996 for the EMD phase.												
(U) F. Schedule Profile												
		<u>FY 2000</u>				<u>FY 2001</u>			<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Payload Critical Design Reviews (2)		*							X			
(U) Ground Inc-1- Consolidated DSP Stations									X			
(U) Ground Inc-2 Critical Design Review									X			
(U) GEO Critical Design Review									X			
(U) HEO Payload #1 Delivery												X
(U) HEO Payload #2 Delivery (FY03)												
(U) GEO Satellite #1 Delivery (FY04)												
(U) GEO Satellite #2 Delivery (FY05)												
*-Completed Event												
X-Planned Event												
Project 3616			Page 4 of 6 Pages				Exhibit R-2 (PE 0604441F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0604441F Space Based Infrared Systems (SBIRS) High EMD				3616		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		
(U)	EMD Contract					381,168	544,289	381,402		
(U)	System Program Office Support					6,053	3,397	5,714		
(U)	Aerospace Corp					13,127	16,281	18,113		
(U)	Total					400,348	563,967	405,229		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
LMMS & TRW (Pre-EMD)	C/CPFF	Jul 95	207,880	207,880	207,880				0	207,880
LMMS/Other (EMD)	C/CPAF	Nov 96	3,671,916	3,671,916	982,304	381,168	544,289	381,402	1,382,753	3,671,916
SBIRS Pre-EMD Contract Adjustment			4,780	4,780	4,780				0	4,780
Technology	Various	Sep 95	11,600	11,600	11,600				0	11,600
Phenomenology	Various	Sep 95	17,350	17,350	17,350				0	17,350
Sandia Natl Lab (Cobra Brass)	Various	Sep 95	10,000	10,000	10,000				0	10,000
<u>Support and Management Organizations</u>										
Aerospace Corp	MORD	Sep 95	237,395	237,395	48,935	13,127	16,281	18,113	140,939	237,395
Prgm Mgmt Supt	Various	Sep 95	237,395	237,395	26,801	6,053	3,397	5,714	46,881	88,846
<u>Test and Evaluation Organizations</u>										
Not Applicable										
Project 3616						Page 5 of 6 Pages	Exhibit R-3 (PE 0604441F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE				
					June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development				0604441F Space Based Infrared Systems (SBIRS) High EMD			3616		
(U) Government Furnished Property:									
	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Description</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
Not Applicable									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				1,233,914	381,168	544,289	381,402	1,382,753	3,923,526
Subtotal Support and Management				75,736	19,180	19,678	23,827	187,820	326,241
Subtotal Test and Evaluation									
Total Project				1,309,650	400,348	563,967	405,229	1,570,573	4,249,767

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604442F Space Based Infrared Systems (SBIRS)
Low

PROJECT
4598

COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4598	SBIRS Low Element EMD	218,088	238,810	0	0	0	0	0	0	0	493,499
	Quantity of RDT&E Articles	0	0	0	0	2	1	0	0	0	0

NOTE: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) A. Mission Description

(U) The Space-Based Infrared System's (SBIRS) primary mission is to provide initial warning of a ballistic missile attack on the US, its deployed forces or its allies. SBIRS will incorporate new technologies to enhance detection; improve reporting of ICBM, SLBM and tactical ballistic missiles; and provide critical mid-course tracking and discrimination data for national and theater missile defense. This system will provide increased performance in order to meet requirements in US Space Command's Capstone Requirements Document and Air Force Space Command's Operational Requirements Document. SBIRS will consist of satellites in Geosynchronous Earth Orbits (GEO), Highly Elliptical Orbits (HEO) and Low Earth Orbits (LEO) and an integrated centralized ground station serving all SBIRS space elements and Defense Support Program (DSP) satellites. This PE funds the SBIRS Low Program Definition Risk Reduction (PDRR) activities and leads to Engineering, Manufacturing and Development (EMD). SBIRS Low is the LEO component of SBIRS.

(U) FY 2000 (\$ in Thousands)

- (U) \$162,000 PDRR Contracts (38 month FFP competitive contracts between two contractors to design a system capable of meeting the SBIRS Low requirements described in the SBIRS Operational Requirements Document).
- (U) \$17,645 Provided Program Definition Support (Includes studies, integration into SBIRS Increment System-of-Systems and modeling and simulation)
- (U) \$17,617 Accomplished other risk reduction activities (Includes cryocoolers, batteries, algorithms, rad hard parts, phenomenology, optical filters, MSX data reduction, contamination control, focal plane arrays (visible and long-wave), and survivability)
- (U) \$20,826 Supported Program Office activities
- (U) \$218,088 Total

The following net transaction is not reflected in the FY00 program total: BTR = -1,459K. This transaction is not reflected in the other sections of the R-docs where an FY00 total is shown.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604442F Space Based Infrared Systems (SBIRS) Low	PROJECT 4598																																																	
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">(U) \$172,000</td> <td>PDRR Contracts (38 month FFP competitive contracts between two contractors to design a system capable of meeting the SBIRS Low requirements described in the SBIRS Operational Requirements Document).</td> </tr> <tr> <td>(U) \$29,016</td> <td>Provide Program Definition Support (Includes studies, integration into SBIRS Increment System-of-Systems and modeling and simulation)</td> </tr> <tr> <td>(U) \$13,239</td> <td>Accomplish other risk reduction activities (Includes cryocoolers, batteries, algorithms, rad hard parts, phenomenology, optical filters, MSX data reduction, contamination control, focal plane arrays (visible and long-wave), and survivability)</td> </tr> <tr> <td>(U) \$24,555</td> <td>Support Program Office activities</td> </tr> <tr> <td>(U) \$238,810</td> <td>Total</td> </tr> </table> <p>The following net transaction is not reflected in the FY01 program total: SBIR = -\$5, 265K. This transaction is not reflected in the other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">(U) \$0</td> <td>No Activity</td> </tr> <tr> <td>(U) \$0</td> <td>Total</td> </tr> </table> <p>The FY02 budget has been transferred to BMDO. The FY program funding request will be submitted by BMDO.</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>(U) This Program Element is in Budget Activity 5, EMD because it funds Program Definition efforts including initial system design and EMD activities for the Low Earth Orbit (LEO) portion of the SBIRS program</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">225,566</td> <td style="text-align: right;">241,021</td> <td style="text-align: right;">306,530</td> <td style="text-align: right;">3,191,255</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">229,029</td> <td style="text-align: right;">241,021</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: right;">-1,934</td> <td style="text-align: right;">-1,687</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: right;">-8,323</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			(U) \$172,000	PDRR Contracts (38 month FFP competitive contracts between two contractors to design a system capable of meeting the SBIRS Low requirements described in the SBIRS Operational Requirements Document).	(U) \$29,016	Provide Program Definition Support (Includes studies, integration into SBIRS Increment System-of-Systems and modeling and simulation)	(U) \$13,239	Accomplish other risk reduction activities (Includes cryocoolers, batteries, algorithms, rad hard parts, phenomenology, optical filters, MSX data reduction, contamination control, focal plane arrays (visible and long-wave), and survivability)	(U) \$24,555	Support Program Office activities	(U) \$238,810	Total	(U) \$0	No Activity	(U) \$0	Total		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	225,566	241,021	306,530	3,191,255	(U) Appropriated Value	229,029	241,021			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-1,934	-1,687			b. Small Business Innovative Research	-8,323				c. Omnibus or Other Above Threshold Reprogram				
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Project 4598	Page 2 of 6 Pages	Exhibit R-2 (PE 0604442F)																																																	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604442F Space Based Infrared Systems (SBIRS) Low	PROJECT 4598
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(U) **C. Program Change Summary (\$ in Thousands) Continued**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
d. Below Threshold Reprogram	212			
e. Rescissions	-896	-524		
(U) Adjustments to Budget Years Since FY 2001 PBR			-306,530	
(U) Current Budget Submit/FY 2002 PBR	218,088	238,810	0	493,499

(U) **Significant Program Changes:**

SBIRS Low program was given direction by the SBIRS Board of Directors (BOD) to move towards a C3 capable satellite in a C1E constellation. The PDRR contractors are currently studying the impacts of the C3 capability on the Life Cycle Cost (LCC).

In FY00 and FY01, funding was shifted from 'Program Definition Support' efforts to the 'Program Office Activities' (\$4.3M in FY00 and \$5.5M in FY01) to increase FFRDC support. This was a direct result of the SBIRS Management Assessment Team (MAT) results which indicated a need for increased government oversight.

In FY02, all program funding will be transferred to BMDO.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) PE 35922F - SBIRS Low Production	0	0	0	0	0	0	0	0	Continuing	TBD
(U) PE 64441 SBIRS High EMD (RDT&E, BA 05, R - 67)	400,348	563,967	405,229	334,753	270,531	197,390	246,627	228,855	292,419	4,249,767
(U) PE 35915 - SBIRS High Advanced Procurement (MPAF, BA-5, P-30)	0	0	93,752	481,020	0	6,968	15,652	17,262	0	614,654
(U) PE 35911 - DSP (RDT&E, BA-07, R-187) FY02 SBIRS Low Production budget transferred to BMDO	7,708	9,374	6,363	6,639	0	0			0	1,922,717

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604442F Space Based Infrared Systems (SBIRS) Low	PROJECT 4598
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(U) E. Acquisition Strategy

The SBIRS program is managed through a single consolidated System Program Office (SPO) at the Space and Missile Systems Center, Los Angeles Air Force Base, CA. SBIRS Low began PDRR activities in August 1999 with the award of two firm fixed price contracts. PDRR will be followed by a competitive contract award for EMD scheduled for award in the fourth quarter of FY02 with the deployment of the SBIRS Low satellites beginning in the fourth quarter of FY06. FY02 budget transferred to BMDO.

(U) F. Schedule Profile

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) System Requirements Review				*								
(U) System Design Reviews						*						
(U) FY02 budget transferred to BMDO									*			
(U)												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0604442F Space Based Infrared Systems (SBIRS)				4598		
				Low						
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		
(U)	PDRR Contracts (Includes Study CLINs)					162,000	172,000	0		
(U)	Provided Program Definition Support (Includes studies, integration into SBIRS Increment System-of-Systems and modeling and simulation)					17,645	29,016	0		
(U)	Accomplished other risk reduction activities (Includes cryocoolers, batteries, algorithms, rad hard parts, phenomenology, optical filters, MSX data reduction, contamination control, focal plane arrays (visible and long-wave), and survivability)					17,617	13,239	0		
(U)	Supported Program Office activities					20,826	24,555	0		
(U)	Total					218,088	238,810	0		
FY02 budget transferred to BMDO.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
TRW	C/FFP	Aug 99			16,000	81,000	86,000			183,000
Spectrum Astro	C/FFP	Aug 99			16,000	81,000	86,000			183,000
EMD					0	0	0			0
PDRR Support	Various	Various			0	17,645	29,016			46,661
Other Risk Reduction Act	Various	Various			4,509	17,617	13,239			35,365
FY02 budget transferred to BMDO.										
<u>Support and Management Organizations</u>										
Program Support	Various	Various	N/A	N/A	92	20,826	24,555			45,473
<u>Test and Evaluation Organizations</u>										
Not Applicable										
Project 4598				Page 5 of 6 Pages				Exhibit R-3 (PE 0604442F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE June 2001					
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT	
05 - Engineering and Manufacturing Development				0604442F Space Based Infrared Systems (SBIRS)				4598	
				Low					
(U) Government Furnished Property:									
	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Item</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Description</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
Not Applicable									
<u>Support and Management Property</u>									
Not Applicable									
<u>Test and Evaluation Property</u>									
Not Applicable									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				36,509	197,262	214,255			448,026
Subtotal Support and Management				92	20,826	24,555			45,473
Subtotal Test and Evaluation									
Total Project				36,601	218,088	238,810			493,499
FY02 budget transferred to BMDO.									

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604479F MILSTAR LDR/MDR Sat Comm					PROJECT 5010	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5010	Milstar Sat Comm Sys	345,590	235,164	232,084	110,363	1,424	1,421	0	0	0	9,682,272
	Quantity of RDT&E Articles	0	2	1	0	0	0	0	0	0	6
<p>This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) A. Mission Description Milstar is a joint service program to develop and acquire extremely high frequency (EHF) satellites; a satellite mission control segment; and new or modified Army, Navy, and Air Force communication terminals for survivable, jam-resistant, worldwide, secure communications to strategic and tactical war fighters. Milstar I Satellites 1 and 2 have a low data rate (LDR) payload that supports strategic and tactical forces with emphasis on highly survivable, minimum essential communications. Milstar II Satellites 3 through 6 have both LDR and medium data rate (MDR) payloads with increased tactical capabilities, including higher data rates to mobile forces and nulling that will neutralize close-in enemy jammers. Satellite 3 did not reach its proper orbit and the satellite was placed in its final non-interference orbit and shutdown. Advanced EHF (AEHF) is the follow-on system to Milstar. OSD approved a new AEHF acquisition strategy in May 2000 (see PE 63430F) to mitigate constellation risk due to the loss of the Milstar 3 satellite. Milstar satellite 4 was launched successfully on 27 February 2001. Milstar satellites 5 and 6 will launch in FY02 and FY03. Milstar Terminals are funded under Program Element 0303601F.</p> <p>(U) FY 2000 (\$ in Thousands) (U) \$270,441 Milstar II (U) \$0 Continued preparation of Satellite 4 for delivery (U) \$0 Continued Satellite 4 integration and test (U) \$0 Continued Satellite 5 integration and test (U) \$0 Continued Satellite 6 LDR and MDR payload integration and test, and start of satellite integration and test (U) \$27,052 Milstar I/II Satellite Engineering (U) \$0 Continued Satellites 1 and 2 on-orbit operations support (U) \$0 Provided Satellite 4 pre-launch support (U) \$0 Continued LDR and MDR technical support (U) \$21,009 Automated Communications Management System (ACMS) (U) \$0 Continued software Build 2 incremental development (U) \$0 Continued maintenance of fielded software Build 1</p>											
Project 5010		Page 1 of 7 Pages					Exhibit R-2 (PE 0604479F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604479F MILSTAR LDR/MDR Sat Comm	PROJECT 5010
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
(U) \$0	Developed web based data distribution product	
(U) \$27,088	Basic Program Office support	
(U) \$345,590	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$168,224	Milstar II	
(U) \$0	Deliver, launch and perform on-orbit checkout and testing for Satellite 4	
(U) \$0	Satellite 5 integration, test and delivery	
(U) \$0	Satellite 6 integration and test	
(U) \$0	Implement ECPs as needed based on operational requirements	
(U) \$34,200	Milstar I/II Satellite Engineering	
(U) \$0	Satellites 4 and 5 technical launch and pre-launch support	
(U) \$0	Continue Satellites 1, 2 and 4 on-orbit operations support	
(U) \$0	Continue LDR and MDR technical support	
(U) \$18,730	Communications Planning Element	
(U) \$0	Continue ACMS software Build 2 incremental development	
(U) \$0	Continue maintenance of fielded communications planning software	
(U) \$0	Develop proposed web-based new technology system	
(U) \$14,010	Basic Program Office support	
(U) \$235,164	Total	
<p>The following net transactions are not reflected in th FY01 Program Total: BTR = +\$3,000K and SBIR = - \$13,573K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p>		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$171,198	Milstar II contract effort includes Satellites 5 and 6 launch and on-orbit checkout and testing. Also continue component integration support (including Mission Control System service life extension) and implementation of ECPs as operationally required.	
(U) \$43,330	Milstar I/II Satellite Engineering contract effort includes launch and pre-launch technical support for Satellites 5 and 6 and continued on-orbit operations support for Satellites 1, 2 and 4, as well as continued LDR and MDR technical support.	
(U) \$7,955	Communications Planning Element includes software development and maintenance.	
Project 5010	Page 2 of 7 Pages	Exhibit R-2 (PE 0604479F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	
				June 2001	
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
05 - Engineering and Manufacturing Development	0604479F MILSTAR LDR/MDR Sat Comm	5010			
(U) A. Mission Description Continued					
(U) FY 2002 (\$ in Thousands) Continued					
(U) \$9,601	Basic Program Office support				
(U) \$232,084	Total				
(U) B. Budget Activity Justification					
This program is in Budget Activity 5, Engineering and Manufacturing Development since it funds Milstar II development.					
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)		357,235	236,841	135,781	9,562,236
(U) Appropriated Value		362,808	237,341		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions		-3,151	-1,661		
b. Small Business Innovative Research		-13,100			
c. Omnibus or Other Above Threshold Reprogram					
d. Below Threshold Reprogram		452			
e. Rescissions		-1,419	-516		
(U) Adjustments to Budget Years Since FY 2001 PBR				96,303	
(U) Current Budget Submit/FY 2002 PBR		345,590	235,164	232,084	9,682,273
Significant Program Changes:					
(U) Significant Program Changes:					
The FY02 adjustment funds increased contract costs due to cumulative slips from FY98 through FY01 in the Titan IV B launch schedule. Flight 3 failure caused a Acquisition Program Baseline schedule breach for MDR IOT&E and IOC II, and a performance breach of FOC. Program Deviation Report was sent to the Defense Acquisition Executive and final Acquisition Program Baseline update is being coordinated.					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604479F MILSTAR LDR/MDR Sat Comm			PROJECT 5010		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other APPN OPAF Wideband Procurement (CCS-C)	0	0	5,429	5,635	8,402	2,222			0	21,688
(U) Related RDT&E:										
(U) RDT&E-AF Wideband 3600, PE 0603854F, BPAC 836780 (CCS-C), BA-4, R-49	0	11,394	22,619	31,186	49,019	25,838			0	140,056
(U) PE 0303601F, MILSATCOM Terminals, BA-7, R-164										
(U) PE 0603430F, Advanced EHF MILSATCOM, BA-4, R-39	89,824	244,135	548,398	516,866	345,019	274,653	161,493	72,095	68,001	2,495,588
(U) PE 0603432F, Polar Satellite Communications Program (Polar Adjunct), BA-4, R-40	37,555	25,829	18,724	9,588	5,724	981			0	277,039
(U) E. Acquisition Strategy										
Lockheed Martin was awarded a sole source contract to develop 6 Milstar protected communication satellites. The first two LDR satellites were launched in FY94 and FY95. Satellite 3 launch in FY99 was to provide the first LDR/MDR on-orbit capability, but the satellite did not reach its proper orbit due to a Centaur upper stage failure. Satellite 4 was launched successfully on 27 February 2001. The last 2 LDR/MDR satellites 5 and 6 will be launched in FY02 and FY03.										
(U) F. Schedule Profile										
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604479F MILSTAR LDR/MDR Sat Comm					PROJECT 5010				
(U) F. Schedule Profile Continued														
		<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>		
		1	2	3	4	1	2	3	4	1	2	3	4	
(U)	Milstar II (LDR/MDR)													
(U)	Deliver ACMS Build 1, Inc 3			*										
(U)	Deliver ACMS Build 2, Inc 1						*							
(U)	Deliver ACMS Build 2, Inc 2									X				
(U)	Satellite 4 Launch						*							
(U)	MDR IOT&E (TBD)													
(U)	IOC II (TBD)													
(U)	Satellite 5 Launch										X			
(U)	Satellite 6 Launch 1QFY03													
(U)	FOC (TBD)													
	*=completed event													
	x=planned event													
	Note: MDR IOT&E, IOC II, and FOC milestones are under review as a result of failure of satellite #3 to achieve operational orbit.													

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604479F MILSTAR LDR/MDR Sat Comm			PROJECT 5010		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Milstar II					270,441		168,224		171,198
(U)	Milstar I/II Satellite Engineering					27,052		34,200		43,330
(U)	Automated Communications Management System					21,009		18,730		7,955
(U)	Basic Program Office Support					27,088		14,010		9,601
(U)	Total					345,590		235,164		232,084
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
			2,181,587	2,181,587	4,727,752	0	0		0	4,727,752
			3,789,166	3,789,166	3,289,971	247,462	151,967	156,984	51,945	3,898,329
			213,396	213,396	55,208	27,052	34,200	43,330	45,950	205,740
					105,648	21,009	18,730	7,955	571	153,913
					25,938	4,084	1,514	1,597	1,536	34,669
					27,169	2,550	1,518	2,050	1,750	35,037
					217,994	16,345	13,225	10,567	2,415	260,546
<u>Support and Management Organizations</u>										
					155,387	20,339	10,378	8,463	8,320	202,887
					151,159	6,749	3,632	1,138	721	163,399
<u>Test and Evaluation Organizations</u>										
None.										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604479F MILSTAR LDR/MDR Sat Comm			PROJECT 5010		
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None.									
<u>Support and Management Property</u>									
None.									
<u>Test and Evaluation Property</u>									
None.									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				8,449,680	318,502	221,154	222,483	104,167	9,315,986
Subtotal Support and Management				306,546	27,088	14,010	9,601	9,041	366,286
Subtotal Test and Evaluation									
Total Project				8,756,226	345,590	235,164	232,084	113,208	9,682,272

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604600F Munitions Dispenser Development					PROJECT 1015	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1015	Wind Corrected Munitions Dispenser (WCMD) Kit	4,961	0	0	0	0	0	0	0	0	153,140
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	173
<p>(U) <u>A. Mission Description</u> This project develops an inertially guided tail kit for CBU-87B, CBU-89B, and CBU-97B dispensers to provide corrections for the effects of wind transients and ballistic errors caused by wind when these munitions are released from medium to high altitudes. Wind Corrected Munitions Dispenser (WCMD) kit fitted weapons will improve effectiveness of both bombers and fighters and significantly contribute to Air Force war fighting capabilities. WCMD kit fitted CBU-97's dropped from bombers are key to stopping enemy armored forces.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$3,849 Complete system level design verification testing to include contractor flight test mission (U) \$960 Complete Development Testing/Operational Testing (U) \$152 Continue program management support, includes travel, program office supplies and equipment, training and technical engineering support (U) \$4,961 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u> This is funded in BA 5, Engineering and Manufacturing Development because it develops a weapon system.</p>											
Project 1015			Page 1 of 5 Pages				Exhibit R-2 (PE 0604600F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604600F Munitions Dispenser Development			1015				
(U) C. Program Change Summary (\$ in Thousands)											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)			3,900	0	0		152,018			
(U)	Appropriated Value			3,900							
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions										
	b. Small Business Innovative Research			-111							
	c. Omnibus or Other Above Threshold Reprogram			1,200							
	d. Below Threshold Reprogram										
	e. Rescissions			-28							
(U)	Adjustments to Budget Years Since FY 2001 PBR							1,122			
(U)	Current Budget Submit/FY 2002 PBR			4,961		0		153,140			
(U)	<u>Significant Program Changes:</u>										
	In FY00, added \$1,200 add completes the fin lock mechanism fix.										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Procurement of * Ammunition, AF P-1 Line Item 23	48,449	103,318	111,194	80,711	80,428	72,339	0	96	0	522,968
	* FY 04 includes \$134K and FY07 includes \$96K to procure WCMD units for SEEK EAGLE testing										
(U) E. Acquisition Strategy											
A full and open competition in FY 1995 led to dual awards for a competitive development effort that included a competitive fly-off. The downselect to one contractor occurred in Jan 1997. The Cost-Plus Award Fee (CPAF) Pilot Production contract awarded to Lockheed-Martin includes production options for five years on a Firm Fixed Price (FFP) basis.											
(U) F. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604600F Munitions Dispenser Development			PROJECT 1015		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Major Contracts					3,849		0		
(U)	Support Contracts					121		0		
(U)	Program Office Support					31		0		
(U)	Test And Evaluation					960		0		
(U)	Aircraft Integration					0		0		
(U)	Total					4,961		0		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Lockheed Martin	C/CPAF	Feb 00	89,635	89,635	85,786	3,849	0		0	89,635
<u>Support and Management Organizations</u>										
ASC/YH	N/A	various	N/A	N/A	5,252	31	0		0	5,283
Support Contracts	various	Oct 98	N/A	N/A	7,964	121	0		0	8,085
<u>Test and Evaluation Organizations</u>										
46 OG/OGML	REO	Feb 00	N/A	N/A	8,383	560	0		0	8,943
Aircraft Integration	AF 616	Feb 99	N/A	N/A	32,220	0	0		0	32,220
Boeing	AF 616	Feb 00	N/A	N/A	0	400	0		0	400
(U) Government Furnished Property:										
<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604600F Munitions Dispenser Development			PROJECT 1015		
(U) Government Furnished Property Continued:									
<u>Item</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u>	<u>Award or</u> <u>Obligation</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
SFW/Combined Effects	FPIF	Apr 96	N/A	4,203	0	0		0	4,203
Munition (CEM)/Seek Eagle (SE)			N/A						
Common Munitions	CPAF	Jul 97	N/A	4,371	0	0		0	4,371
Built-in-Test Reprogramming Equipment (CMBRE)			N/A						
<u>Support and Management Property</u>									
Not Applicable									
<u>Test and Evaluation Property</u>									
Not Applicable									
<u>Subtotals</u>				<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development				94,360	3,849	0		0	98,209
Subtotal Support and Management				13,216	152	0		0	13,368
Subtotal Test and Evaluation				40,603	960	0		0	41,563
Total Project				148,179	4,961	0		0	153,140

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	18,046	9,786	3,838	6,952	10,486	2,764	55,002	244,127	Continuing	TBD
3133 Bombs & Fuzes	16,742	8,473	2,475	5,555	9,060	1,310	53,517	242,610	Continuing	TBD
4696 Armament Standardization Program	1,171	1,183	1,230	1,261	1,285	1,309	1,334	1,360	Continuing	TBD
5613 Containers	133	130	133	136	141	145	151	157	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	Continuing	TBD

Note: The FY03-FY07 budget numbers do not reflect DoD's strategic review results.'

Note: FY02 funding was increased to reflect the development of an explosive fill to make conventional weapons insensitive to unplanned stimuli for MK-80 series bombs as set forth in DoD Regulation 5000.2-R. This Insensitive Munitions effort is a new start effort within the Bombs and Fuzes BPAC (653133).

(U) **A. Mission Description**
 The Armament Ordnance Development program provides for initial and continuing development of munition equipment for support and operational use.

Armament Standardization/Control/Munitions Material Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of munitions handling and armament equipment to preclude duplication. This project's efforts are limited to the study, design, and development, of MMHE and armament control systems. Procurement will be performed and funded by the applicable weapons system project.

Bombs and Fuzes: This project develops and improves conventional bombs and fuzes. It currently includes the development of the Hard Target Smart Fuze (HTSF). Miniaturized Munitions Capability (MMC) continues the Concept Exploration phase in this project. Initial MMC funding was used to explore concepts to meet CAF MNS 304-97, 'Miniaturized Munitions Capability'. The Insensitive Munitions (IM) new start effort will initiate the development of an explosive fill to make conventional weapons insensitive to unplanned stimuli for MK-80 series bombs.

Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This maintains a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, acquisition transportation, prototyping, testing capabilities, as well as the Joint

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE	
BUDGET ACTIVITY				June 2001	
05 - Engineering and Manufacturing Development		PE NUMBER AND TITLE			
		0604602F Armament/Ordnance Development			
(U)	<u>A. Mission Description Continued</u> Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading.				
(U)	<u>B. Budget Activity Justification</u> This program is in budget activity 5 - Engineering and Manufacturing Development because the projects support the EMD phase of several munitions related items and functions.				
(U)	<u>C. Program Change Summary (\$ in Thousands)</u>				
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	23,567	8,876	1,355	TBD
(U)	Appropriated Value	23,567	21,876		TBD
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-153		TBD
	b. Small Business Innovative Research	-141			TBD
	c. Omnibus or Other Above Threshold Reprogram	-4,989			TBD
	d. Below Threshold Reprogram	-298			TBD
	e. Rescissions	-93	-48		TBD
(U)	Adjustments to Budget Years Since FY 2001 PBR		-11,889	2,483	
(U)	Current Budget Submit/FY 2002 PBR	18,046	9,786	3,838	TBD
(U)	<u>Significant Program Changes:</u>				
	FY00: \$4.989M reduction was result of reprogramming action to move funds for fixed target MMC risk reduction for Mk-82 JDAM to 64618F.				
	FY01: \$13M Congressional add of which \$12M was to 'accelerate development of a 250 pound MMC variant' and \$1M was for cast ductile bomb development. \$11.889M was subsequently moved to newly established Small Diameter Bomb PE 64329F.				
	FY02: Funding was increased to reflect the development of an explosive fill to make conventional weapons insensitive to unplanned stimuli for MK-80 series bombs as set forth in DoD Regulation 5000.2-R. This Insensitive Munitions effort is a new start effort within the Bombs and Fuzes BPAC (653133).				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604602F Armament/Ordnance Development					PROJECT 3133	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
3133 Bombs & Fuzes	16,742	8,473	2,475	5,555	9,060	1,310	53,517	242,610	Continuing	TBD	
<p>Note: FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>Note: FY02 funding was increased to reflect the development of an explosive fill to make conventional weapons insensitive to unplanned stimuli for MK-80 series bombs as set forth in DoD Regulation 5000.2-R. This Insensitive Munitions effort is a new start effort within the Bombs and Fuzes BPAC (653133).</p> <p>(U) <u>A. Mission Description</u> Bombs and Fuzes: This project develops and improves conventional bombs and fuzes including the development of the Hard Target Smart Fuze (HTSF). The HTSF is a layer counting and void sensing fuze that will be used with air-to-ground penetrator weapons. Miniaturized Munitions Capability (MMC) continues the Concept Exploration phase in this project. Insensitive Munitions development is a new start effort to initiate development of an insensitive munitions explosive fill to make conventional weapons insensitive to unplanned stimuli as set forth in DoD Regulation 5000.2-R.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$4,531 Conducted HTSF contractor test and evaluation (CT&E) (U) \$3,030 Initiated HTSF developmental test and evaluation (DT&E) (U) \$4,672 Conducted MMC Concept Exploration Contracts (U) \$3,741 Conducted and completed MMC AOA Modeling and Analysis (U) \$768 Program Office Support (U) \$16,742 Total * The following net transactions are not reflected in the FY01 program total: BTR = +95K and SBIR = -315.K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$1,866 Complete Hard Target Smart Fuze (HTSF) detailed design, and Functional Configuration Audit (U) \$5,153 Continue HTSF developmental test and evaluation (DT&E) and complete contractor test and evaluation (CT&E) (U) \$456 Support HTSF Operational Utility Evaluation (OUE) (U) \$998 Develop a cast ductile bomb (congressional add) (U) \$8,473 Total</p>											
Project 3133			Page 3 of 14 Pages				Exhibit R-2A (PE 0604602F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604602F Armament/Ordnance Development	PROJECT 3133
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(U) **A. Mission Description Continued**

(U) FY 2002 (\$ in Thousands)

- (U) \$300 Start Reformulation development of insensitive explosive fill
- (U) \$1,900 Start Small-scale Sensitivity and Qualification Testing and Booster Study Test
- (U) \$275 Start Small-scale Performance Testing
- (U) \$2,475 Total

(U) **B. Project Change Summary**

- FY01: \$13M Congressional add of which \$12M was to 'accelerate development of a 250 pound MMC variant' and \$1M was for cast ductile bomb development. \$11.889M was subsequently moved to newly established Small Diameter Bomb PE 64329F
- FY02 New Start effort to initiate Insensitive Munitions (IM) development for MK-80 series bombs.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Hard Target Smart Fuze (HTSF) procurement funded by Defense Threat Reduction Agency (DTRA)	3,000	6,000	6,000	12,000						

(U) **D. Acquisition Strategy**

The Hard Target Smart Fuze (HTSF) Acquisition Strategy was full and open competition for the EMD program with production options to meet performance specification requirements for current and future Hard Target munitions. The HTSF will be compatible with GBU-24, GBU-27, GBU-28, GBU-15, AGM-130, AGM-142, JDAM, and future hard target munitions while providing increased reliability and emphasis on life cycle management. The HTSF program was augmented with Defense Threat Reduction Agency (DTRA) funding and requirements for additional HTSF applications and follow-on fuze procurement. Acquisition strategy for MMC activities can be found in the Small Diameter Bomb PE 64329F. Acquisition strategy for Insensitive Munitions activities are TBD.

(U) **E. Schedule Profile**

FY 2000 FY 2001 FY 2002

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT				
05 - Engineering and Manufacturing Development					0604602F Armament/Ordnance Development					3133				
(U) <u>E. Schedule Profile Continued</u>														
		<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4		
(U)	Start HTSF CT&E												*	
(U)	Complete HTSF Detailed Design												X	
(U)	Complete CT&E												X	
(U)	Start DT&E												X	
(U)	Complete FCA												X	
(U)	Complete DT&E												X	
(U)	Start IM Lethality Feasibility Study												*	
(U)	Start IM Fill Development												X	
(U)	Start Small-scale Sensitivity/Qual Testing												X	
(U)	Start Small-scale Performance Testing												X	
* = Event occurred														
X = Event planned														
Note: Schedule changes adjusted due to contractor test and production difficulties.														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604602F Armament/Ordnance Development			3133		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Contractor Total					10,425		3,500		0
(U)	Government									335
(U)	Testing					2,236		2,541		1,605
(U)	Contractor support					1,808		660		260
(U)	Management support					2,273		1,772		275
(U)	Total					16,742		8,473		2,475
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Motorola (JPF)	CPAF	Jul 93	21,357	21,357	21,357	0	0		0	21,357
Alliant (HTSF)	C/CPIF	Aug 98	16,010	16,010	5,474	5,200	3,500		Continuing	TBD
Boeing (MMC)	FFP	Jan 99	250	250	250	1,313	0		Continuing	TBD
Lockheed (MMC)	FFP	Jan 99	250	250	250	1,318	0		Continuing	TBD
Raytheon (MMC)	FFP	Jan 99	250	250	250	1,320	0		Continuing	TBD
Northrup (MMC)	FFP	Jan 99	250	250	250	1,274	0		Continuing	TBD
Air Force Research Lab (IM)	In-house	N/A	2,475	2,475	0	0		335		335
<u>Support and Management Organizations</u>										
HTSF TEAS/ TEAMS	Various	Various	N/A	N/A	1,171	979	660		Continuing	TBD
MMC TEAS/ TEAMS	Various	Various	N/A	N/A	424	829	0		Continuing	TBD
JPF TEAS/TEAMS	Various	Various	N/A	N/A	512	0	0		0	512
AAC/WG (HTSF)	Various	Various	N/A	N/A	1,339	1,215	454		Continuing	TBD
AAC/WMX (MMC)	Various	Various	N/A	N/A	1,620	1,058	0		Continuing	TBD
Other MMC	Various	Various	N/A	N/A	1,050	0	0		0	1,050
Project 3133					Page 6 of 14 Pages			Exhibit R-3 (PE 0604602F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development				PROJECT 3133		
(U) Performing Organizations Continued:										
<u>Support and Management Organizations</u>										
WL/MN (cast ductile bomb)	Various	Various	N/A	N/A	0	0	998		Continuing	TBD
AFRL/MN (IM)	In-house	N/A	N/A	N/A	0	0	320	535	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
46th Test HTSF	Various	Mar 94	N/A	N/A	590	985	2,541		Continuing	TBD
46th test JPF	Various	Mar 94	N/A	N/A	3,315	0	0		0	3,315
MMC Test					0	1,251	0		0	1,251
MK-84 IM Tech/AFRL	In-house	N/A	N/A	N/A	0	0	0	1,605		1,605
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					27,831	10,425	3,500	335	TBD	TBD
Subtotal Support and Management					6,116	4,081	2,432	535	TBD	TBD
Subtotal Test and Evaluation					3,905	2,236	2,541	1,605	TBD	TBD
Total Project					37,852	16,742	8,473	2,475	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604602F Armament/Ordnance Development					PROJECT 4696	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
4696 Armament Standardization Program	1,171	1,183	1,230	1,261	1,285	1,309	1,334	1,360	Continuing	TBD	
* 'The FY03-FY07 budget numbers do not reflect DoD's strategic review results.'											
(U) A. Mission Description											
Armament Standardization/Control/Munitions Material Handling Equipment (MMHE): This continuing project develops and improves the standardization and commonality of improved munitions handling and armament equipment to preclude duplication. This project's efforts are limited to the study, design, and development, of MMHE and armament control systems. Procurement will be performed and funded by the applicable weapons system project.											
(U) FY 2000 (\$ in Thousands)											
(U) \$583	Designed, prototyped, and tested various MMHE projects, i.e., Flightline Service Cart, F-16 Pylon Load Adapter, Practice Bomb Transport Module and ADU-537 Upgrade. Completed development of M61 Gun Firing Stand, Containter Dolly, MJ-1 Platform, Trailer Stabilizer Jack, Flare Squibbing Fixture, AME Maintenance Stand, B-1B Practice Bomb Adapter Rack Fixture, Missile Lift Beam Modification, JDAM Strap Adapter Redesign, Common Maintenance Table, Y-stand Dolly, evaluation of Next Generation Munitions Handler and Missile Dislodge Tools. Continued AGM-84 Loading Adapter, B-52 Loading Adapter.										
(U) \$293	Continued development of Aluminum Rail Set, T-2 Pallet Locking Device and continued evaluation of Next Generation Munitions Handler.										
(U) \$74	Completed development of ALE-50 Flare Transport Module.										
(U) \$49	Completed development of B-1B Rotary Launcher Adapter.										
(U) \$72	Continued development of Joint JASSM Handling Adapters.										
(U) \$100	Continued development of Next Generation Munitions Handling Trailer.										
(U) \$1,171	Total										
(U) FY 2001 (\$ in Thousands)											
(U) \$1,183	Design, prototype, and test various MMHE projects, i.e., MJ-1 Table Modification, Triple Ejector Rack (TER) Storage Rack, Ammo Loader Replenisher Upgrade, AME Mobility Rack, Chaff/Flare Transport Module, Missile-Munitions Loading Adapter (MMLA) Upgrade, FMU-139 Cable Seating Tool, JASSM Download Adapter, MHU-110 Trailer Upgrade, Storage and Practice Bomb Transport Module. Complete development of Aluminum Rail Set, T-2 Pallet Locking Device, JASSM Loading/Handling Adapters, AGM-84 Fork Adapter, B-52 Loading Adapter, MAC Dolly-Stop Redesign, F-16 Pylon/Launcher Storage Stand, FMU-139 Closure Ring Tool, FMU-139 Cable Seating Tool, MMLA Actuator Redesign, Live Drop BDU-50 Stand, Strake/Lug Alignment Tool, B-1B Swing Arm Tool. Continue development of B-1B Launcher-Module Storage Stand, Next Generation Munitions Handler and Practice Bomb Transport Module. Initiate MAC Upgrade, MAC										
Project 4696	Page 8 of 14 Pages							Exhibit R-2A (PE 0604602F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development				PROJECT 4696					
(U) <u>A. Mission Description Continued</u>													
(U) <u>FY 2001 (\$ in Thousands) Continued</u>													
Torque Retainer, MMLA Upgrade, AIM-9 Assembly Stand Redesign, B-52 Launcher Hydraulic Power Unit, B-52 Mine Loading Adapter, Ammo Loader Replenisher Upgrade and other projects as determined by HQ ACC/LGW and/or Weapon System Program Offices.													
(U) \$1,183 Total													
(U) <u>FY 2002 (\$ in Thousands)</u>													
(U) \$1,230 Design, prototype, and test various MMHE projects, i.e., Ammo Loader Test Fixture, Alternate Mission Equipment (AME) Mobility Rack, LAU-106 Maintenance Stand, Gun Maintenance Stand. Complete development of B-1B Launcher-Module Storage Stand, AIM-9 Assembly Stand Redesign, Practice Bomb Transport Module and MAC Torque Retainer. Continue development of MAC Upgrade, MMLA Upgrade, B-52 Launcher Hydraulic Power Unit, B-52 Mine Loading Adapter, Next Generation Munitions Handler and Ammo Loader Replenisher Upgrade. Perform MHU-110 Trailer Upgrade, Ammo Loader Test Fixture, JASSM Download Adapter, Alternate Mission Equipment (AME) Mobility Rack, LAU-106 Maintenance Stand, Triple Ejector Rack (TER) Storage Rack, B-52 Yoke Stand/Lift Beam, Gun Maintenance Stand, International Service Organization (ISO) Container Stand, Bomb Roller Redesign and other projects as determined by HQ ACC/LGW and/or Weapon System Program Offices.													
(U) \$1,230 Total													
(U) <u>B. Project Change Summary</u>													
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>													
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>				
(U) N/A													
(U) <u>D. Acquisition Strategy</u>													
MMHE is a continuing effort program with activities contracted through Military Interdepartmental Purchase Requests (MIPR). Procurement will be performed and funded by the applicable equipment project.													
(U) <u>E. Schedule Profile</u>													
		<u>FY 2000</u>				<u>FY 2001</u>			<u>FY 2002</u>				
		1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A													
Not Applicable. MMHE does not execute in accordance with standard acquisition milestones. Project activities are performed on a continuing basis													
Project 4696				Page 9 of 14 Pages				Exhibit R-2A (PE 0604602F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604602F Armament/Ordnance Development			PROJECT 4696			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Various MMHE Projects					583		1,183		1,230	
(U)	Aluminum Rail Set, T-2 Pallet Locking Device, evaluation of Next Generation Munitions Handler					293					
(U)	Next Generation Munition Handling Trailer					100					
(U)	B-1B Rotary Launcher Adapter					49					
(U)	ALE-50 Transport Module					74					
(U)	JASSM Handling Adapters					72					
(U)	Total					1,171		1,183		1,230	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>											
	Dept. of Energy/NASA	MIPR				740	224	219	227	Continuing	TBD
<u>Support and Management Organizations</u>											
	TEAS/TAMS	MIPR	Oct 99	N/A	N/A	1,550	609	626	641	Continuing	TBD
	AFDTC/FM	MIPR	Oct 99	N/A	N/A	365	123	123	124	Continuing	TBD
	64SSUPS/LGS	MIPR	Cont.	N/A	N/A	146	40	40	46	Continuing	TBD
	WL/MN	MIPR	Cont.	N/A	N/A	105	25	25	30	Continuing	TBD
<u>Test and Evaluation Organizations</u>											
	46th Test Wing	MIPR	Cont.	N/A	N/A	400	150	150	162	Continuing	TBD
(U) <u>Government Furnished Property:</u>											
	<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
Project 4696											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		
BUDGET ACTIVITY				PROJECT		
05 - Engineering and Manufacturing Development				0604602F Armament/Ordnance Development		
				June 2001		
				4696		
(U) Government Furnished Property Continued:						
	<u>Contract</u>	<u>Award or</u>				
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>
<u>Description</u>	<u>Vehicle</u>					
<u>Product Development Property</u>						
N/A						
<u>Support and Management Property</u>						
<u>Test and Evaluation Property</u>						
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>
						<u>FY 2002</u>
						<u>Budget to</u>
						<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development				740	224	219
Subtotal Support and Management				2,166	797	814
Subtotal Test and Evaluation				400	150	150
Total Project				3,306	1,171	1,183
						1,230
						TBD
						TBD
						TBD
						TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604602F Armament/Ordnance Development					PROJECT 5613	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5613	Containers	133	130	133	136	141	145	151	157	Continuing	TBD
* 'The FY03-FY07 budget numbers do not reflect DoD's strategic review results.'											
(U) A. Mission Description											
Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This system includes the maintenance of a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, prototyping, testing capabilities, as well as the Joint Ordnance Commander's Working Group (JOCG) for Packaging, Handling, and Loading. This project's efforts are limited to study, design, and development of container systems. The project also provides world wide acquisition transportation support and participates in Tri-Service groups and organizations for packaging, handling, logistic and transportation. Any procurement will be performed and funded by the applicable weapons system project.											
(U) FY 2000 (\$ in Thousands)											
(U) \$5 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.											
(U) \$5 Provide container design expertise, management, and technical support to programs such as CALCM, JASSM, AMRAAM, AGM-142, MALD, AGM-130, and WCMD.											
(U) \$123 Manage and operate the CDRS data base and support service.											
(U) \$133 Total											
(U) FY 2001 (\$ in Thousands)											
(U) \$5 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.											
(U) \$5 Provide container design expertise, management, and technical support to programs such as CALCM, JASSM, AMRAAM, AGM-142, MALD, AGM-130, and WCMD.											
(U) \$120 Manage and operate the CDRS data base and support service.											
(U) \$130 Total											
(U) FY 2002 (\$ in Thousands)											
(U) \$6 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.											
(U) \$5 Provide container design expertise, management, and technical support to programs such as CALCM, JASSM, AMRAAM, AGM-142, MALD, AGM-130, and WCMD.											
(U) \$122 Manage and operate the CDRS data base and support service.											
Project 5613				Page 12 of 14 Pages				Exhibit R-2A (PE 0604602F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																										
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development				PROJECT 5613																																																																									
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$133 Total</p> <p>(U) <u>B. Project Change Summary</u> No significant program changes.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) Not Applicable</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Not Applicable</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Not Applicable. Not Applicable. The Containers project does not execute in accordance with standard acquisition milestones. Design and support efforts are performed on a continuing basis.</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not Applicable												<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Not Applicable. Not Applicable. The Containers project does not execute in accordance with standard acquisition milestones. Design and support efforts are performed on a continuing basis.																		
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																							
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																																								
(U) Not Applicable																																																																																	
	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>																																																																								
	1	2	3	4	1	2	3	4	1	2	3	4																																																																					
(U) Not Applicable. Not Applicable. The Containers project does not execute in accordance with standard acquisition milestones. Design and support efforts are performed on a continuing basis.																																																																																	
Project 5613			Page 13 of 14 Pages				Exhibit R-2A (PE 0604602F)																																																																										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604602F Armament/Ordnance Development				PROJECT 5613		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Travel/Transportation					72		70		72
(U)	Supplies/Equipment					51		50		50
(U)	Mission Support					10		10		11
(U)	Total					133		130		133
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Not Applicable										
<u>Support and Management Organizations</u>										
Sverdrup (TEAS)	Various	Oct 93	N/A	N/A	1,455	0	0	0	Continuing	TBD
ASC/YHS	Various	Various	N/A	N/A	588	10	10	11	Continuing	TBD
Other	Various	Various	N/A	N/A	688	123	120	122	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
46th Test Wing	Various	Various	N/A	N/A	190	0	0	0	Continuing	TBD
					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>										
Subtotal Product Development										
Subtotal Support and Management					2,731	133	130	133	TBD	TBD
Subtotal Test and Evaluation					190	0	0	0	TBD	TBD
Total Project					2,921	133	130	133	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604604F Submunitions					PROJECT 3166	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3166	Joint Smart Munitions Test and Evaluation	7,470	4,732	4,809	4,751	4,851	4,953	5,654	5,862	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: The FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) **A. Mission Description**
 This PE provides support for smart munitions and related technologies test and evaluation (T&E) activities, including T&E support for programs in engineering and manufacturing development. Project 3166 is a joint US Air Force/US Army project which provides RDT&E support for developmental smart munitions acquisition programs. Project 3166 (project Chicken Little) evaluates developmental smart munitions and related emerging technology with applications against vehicle targets and Theater Air Defense units by determining performance against actual foreign targets in realistic environments and in the presence of countermeasures. Data gathered is used to meet developmental decision points requiring highly reliable, realistic performance data. The project is a major focal point for joint Air Force and Army target signature collection and dissemination for development and exploitation purposes. The program provides best value test and evaluation support for submunition development and weaponization studies and modeling and simulation capabilities to augment a limited number of measurement and open air tests of smart weapons and related technologies.

(U) **FY 2000 (\$ in Thousands)**

(U) \$820 Continue weapon effectiveness evaluation and weaponization studies

(U) \$526 Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies

(U) \$481 Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink

(U) \$1,292 Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development

(U) \$713 Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons

(U) \$776 Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHD)

(U) \$2,862 Develop, procure, install and test an imaging infrared (IIR) instrumentation for multi-object target space position information for accurate tracking of smart weapon submunitions required for precise analysis of weapons test data

(U) \$7,470 Total

The following net transaction is not reflected in the FY00 program total: BTR of -35K.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
		June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0604604F Submunitions	3166		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2001 (\$ in Thousands)</u>				
(U) \$984	Continue weapon effectiveness evaluation and weaponization studies			
(U) \$686	Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies			
(U) \$534	Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink			
(U) \$1,111	Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development			
(U) \$681	Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons			
(U) \$736	Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHD)			
(U) \$4,732	Total			
The following net transactions are not reflected in the FY01 program total: BTR of -126K and SBIR of -165K.				
(U) <u>FY 2002 (\$ in Thousands)</u>				
(U) \$1,119	Continue weapon effectiveness evaluation and weaponization studies			
(U) \$743	Develop, validate, and accredit improved models and simulation for assessment of alternatives and force on force studies			
(U) \$253	Increase utility of lethality/vulnerability and signature database through addition of modern threat systems and secure datalink			
(U) \$1,195	Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development			
(U) \$704	Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons			
(U) \$795	Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Advanced Hardened Targets (AHT)			
(U) \$4,809	Total			
(U) <u>B. Budget Activity Justification</u>				
This program is funded in BA 5 - Engineering and Manufacturing Development because this program supports development programs prior to production decision.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	7,698	4,775	4,782	TBD
(U) Appropriated Value	7,798	4,775		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-48	-33		
b. Small Business Innovative Research	-223			
c. Omnibus or Other Above Threshold Reprogram	-27			
Project 3166	Page 2 of 5 Pages	Exhibit R-2 (PE 0604604F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604604F Submunitions				PROJECT 3166					
(U) C. Program Change Summary (\$ in Thousands) Continued													
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			<u>Total Cost</u>				
	d. Below Threshold Reprogram												
	e. Rescissions			-30	-10								
(U)	Adjustments to Budget Years Since FY 2001 PBR					27							
(U)	Current Budget Submit/FY 2002 PBR			7,470	4,732	4,809				TBD			
(U)	<u>Significant Program Changes:</u>												
	No significant change.												
(U) D. Other Program Funding Summary (\$ in Thousands)													
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U)	Not Applicable.												
(U) E. Acquisition Strategy													
	Funds are executed organically in support of test and evaluation activities including studies, analyses, flight tests, model building and simulation. There are several small contracts supporting the program office.												
(U) F. Schedule Profile													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Project 3166, Joint Smart Munition Test and Evaluation Program (Project Chicken Little) does not execute in accordance with established acquisition milestones. Chicken Little is a continuing test effort (target/warhead evaluation/analysis, signature tests, captive carry flight tests, are ongoing throughout the year and continue through the FYDP). This project is also funded by the Army and other Services on a case by case basis. The type of activities is given in Section A but the timing, duration and level of effort is decided at the semi-annual Steering Committee meetings.												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604604F Subunits			PROJECT 3166			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Program Support					1,108		500		528	
(U)	Target Support					468		700		800	
(U)	Warhead Range Operations					313		349		327	
(U)	Captive Flight Tests					510		973		1,064	
(U)	Database Support (MILES)					270		213		225	
(U)	Vulnerability/Effectiveness Analysis					622		604		708	
(U)	Warhead Evaluation					332		300		300	
(U)	Target Signature Tests					570		239		196	
(U)	Models and Simulation Tools					415		854		661	
(U)	Develop and Install Imaging Infrared Instrumentation					2,862		0		0	
(U)	Total					7,470		4,732		4,809	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	USArmy (Msl Command)	TBD	Mar 00	6,000	6,000	0	2,862	0	0	3,000	5,862
	<u>Support and Management Organizations</u>										
	Sverdrup	C/CPIF	Jun 96	N/A	N/A	9,091	1,317	1,301	1,524	Continuing	TBD
	ANSTEC	C/FFP	Apr 96	N/A	N/A	1,227	201	262	275	Continuing	TBD
	46 OG/OGML	N/A	Annual	N/A	N/A	5,355	783	909	550	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	46 OG/OGML		Annual	N/A	N/A	67,238	2,307	2,260	2,460	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE		
							June 2001		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development				0604604F Subunits			3166		
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
	<u>or Funding</u>	<u>Date</u>	<u>Date</u>						
	<u>Vehicle</u>								
<u>Product Development Property</u>									
Not Applicable	N/A	N/A	N/A	0	0	0		0	0
<u>Support and Management Property</u>									
Not Applicable	N/A	N/A	N/A	0	0	0		0	0
<u>Test and Evaluation Property</u>									
Not Applicable	N/A	N/A	N/A	0	0	0		0	0
<u>Subtotals</u>				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				0	2,862	0	0	3,000	5,862
Subtotal Support and Management				15,673	2,301	2,472	2,349	TBD	TBD
Subtotal Test and Evaluation				67,238	2,307	2,260	2,460	TBD	TBD
Total Project				82,911	7,470	4,732	4,809	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604617F Agile Combat Support						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	0	3,383	6,674	6,333	6,436	6,545	6,525	7,103	Continuing	TBD
2895 CE Readiness	0	3,383	5,370	5,641	5,760	5,877	6,243	6,815	Continuing	TBD
4910 Aeromedical Readiness	0	0	1,304	692	676	668	282	288	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

The FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) **A. Mission Description**
 This Program Element (PE) provides capabilities to rapidly deploy, defend and sustain airfield operations and command and control activities to ensure readiness. In addition, this PE provides tactical, strategic aeromedical evacuation systems, automated information systems, and medical treatment equipment to meet unique Air Force medical readiness and operational requirements. These activities are prerequisites to establishing air superiority. Development of the Agile Combat Support (ACS) systems provides beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), aeromedical evacuation and treatment equipment, and security and reconnaissance capabilities to support aircraft deployment, launch, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in supporting numerous global contingencies such as DESERT SHIELD/DESERT STORM, Provide Comfort, Restore Hope, and Joint Endeavor for security, base defense, relief efforts, and special operations throughout the world. Specific ACS capabilities being developed include: power generation and distribution systems to reduce airlift; deployable medical grade oxygen generation systems; a family of deployable shelters to be used as aircraft hangars, maintenance facilities, heavy equipment storage, C4I operations, medical and personnel shelters; systems to repair runway damage; and Joint Service (Army-led) test, evaluation and acquisition of protective systems and equipment to be used by Air Force EOD technicians for reconnaissance and mine clearing missions.

(U) **B. Budget Activity Justification**
 The Agile Combat Support program is in RDT&E budget activity 5 - Engineering and Manufacturing Development (EMD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance, and tactical shelters.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)			DATE		
			June 2001		
BUDGET ACTIVITY		PE NUMBER AND TITLE			
05 - Engineering and Manufacturing Development		0604617F Agile Combat Support			
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	946	668	0	TBD
(U)	Appropriated Value	0	3,414		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-24		
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram				
	d. Below Threshold Reprogram				
	e. Rescissions		-7		
(U)	Adjustments to Budget Years Since FY 2001 PBR			6,674	
(U)	Current Budget Submit/FY 2002 PBR	0	3,383	6,674	TBD
(U)	<u>Significant Program Changes:</u>				
	Funding: FY00 funding eliminated. Funds in PE64708F merged into PE 64617 in FY01; Funds in PE 64703F and RDT&E funds in PE28031F merged into PE64617F in FY02. This meets the intent of House action to eliminate smaller PEs and provide a more cohesive, manageable Agile Combat Support program.				
	The following net transactions are not reflected in the FY01 program total: BTR = -1,188K; SBIR = -120K.				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604617F Agile Combat Support					PROJECT 2895	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
2895 CE Readiness	0	3,383	5,370	5,641	5,760	5,877	6,243	6,815	Continuing	TBD	
<p>The Air Force consolidated three Civil Engineer (CE) readiness R&D programs (PE64617F - Agile Combat Support; PE64708F - Civil, Fire, Environmental, Shelters; and the RDT&E portion of PE28031F - War Reserve Material) under PE 64617F, Project 2895. PE 64708F consolidation is effective FY01. PE 28031F RDT&E consolidation is effective FY02. This will meet the intent of the House action to eliminate smaller PEs and provide a more cohesive, manageable CE Readiness modernization effort.</p> <p>The FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) <u>A. Mission Description</u> This Program Element (PE) provides capabilities to rapidly deploy, defend and sustain airfield operations and command and control activities to ensure readiness. These activities are prerequisites to establishing air superiority. Development of the Agile Combat Support (ACS) systems provides beddown for aircraft, support equipment, and forces at both main operating bases and contingency operating locations, which may have only a runway and a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), and security and reconnaissance capabilities to support aircraft deployment, launch, recovery and regeneration. Lighter-weight, rapidly deployable equipment has become essential in supporting numerous global contingencies such as DESERT SHIELD/DESERT STORM, Provide Comfort, Restore Hope, and Joint Endeavor for security, base defense, relief efforts, and special operations throughout the world. Specific ACS capabilities being developed include: power generation and distribution systems to reduce airlift; a family of deployable shelters to be used as aircraft hangars, maintenance facilities, heavy equipment storage, C4I operations, medical and personnel shelters; systems to repair runway damage; and Joint Service (Army-led) test, evaluation and acquisition of protective systems and equipment to be used by Air Force EOD technicians for reconnaissance and mine clearing missions.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$531 Complete EMD for All-purpose Remote Transport System (ARTS) FY99-01 attachments to locate, analyze, and render safe unexploded ordnance and terrorist bombs. (U) \$1,685 Continue courseware development for Multimedia Training Systems (MTS) courseware for aircraft familiarization, hazardous material, confined space rescue, emergency medical technician, and force protection programs. (U) \$210 Continue Commercial Technology Exploitation (CTE) for low cost civil engineering-related equipment. (U) \$185 Complete development of composite tactical shelter and methods to evaluate shelter performance.</p>											
Project 2895			Page 3 of 12 Pages				Exhibit R-2A (PE 0604617F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT				
05 - Engineering and Manufacturing Development	0604617F Agile Combat Support					2895				
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2001 (\$ in Thousands) Continued</u>										
(U) \$292	Continue other technical support.									
(U) \$480	Initiate System Development and Demonstration (SDD) (replaces EMD) for the ARTS Alternate Control System to provide crucial backup control capability for the ARTS.									
(U) \$3,383	Total									
The following net transactions are not reflected in the FY01 program total: BTR = -1,188K; SBIR = -120K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.										
(U) <u>FY 2002 (\$ in Thousands)</u>										
(U) \$735	Continue SDD for the ARTS Alternate Control System.									
(U) \$1,020	Initiate SDD for ARTS Manipulator Arms.									
(U) \$260	Complete EMD for Deployable Power Generation and Distribution System (DPGDS).									
(U) \$120	Initiate EMD for Lightweight Matting for runways and contingency aircraft parking.									
(U) \$1,690	Continue EMD for Multimedia Training Systems (MTS)									
(U) \$680	Continue EMD for Commercial Technology Exploitation (CTE)									
(U) \$865	Continue Other Technical Support									
(U) \$5,370	Total									
(U) <u>B. Project Change Summary</u>										
Activities formerly funded in PE 64708F are now funded in this project.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Other Procurement, AF, PE 28031F, Other Base and Maintenance Support, Mobility Equipment (WSC 845420)	46,455	50,021	27,421	26,809	20,148	19,348			Continuing	TBD
(U) Other Procurement, AF, PE	4,378	1,838	0	0	0	0			0	TBD
Project 2895										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0604617F Agile Combat Support				2895			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
28028F, Other Base and Maintenance Support, Air Base Operability (WSC 845100)											
(U) D. Acquisition Strategy											
Many of the projects funded in this PE employ a streamlined acquisition approach, instead of traditional EMD. Whenever practical, commercial items are tested and evaluated as candidates for solutions to user needs. This normally involves characterization, verification and qualification testing to ensure off-the-shelf equipment is properly adapted for military purposes. The Bare Base Systems Readiness Board evaluates laboratory and commercial technologies with application for modernization of Bare Base assets, such as deployable shelters, power, waste treatment and airfield support systems. With board approval, the SPO initiates EMD and production funding is realigned from current product lines to support modernization of assets. Initiation of EMD includes all 6.4 activities leading up to contract award and subsequent test and evaluation culminating in a Milestone III production decision.											
(U) E. Schedule Profile											
				<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>			
				1	2	3	4	1	2	3	4
(U)	ALL-PURPOSE REMOTE TRANSPORT SYSTEM II										
(U)	Award FY00 Production Option (Production Funds)										
(U)	Complete test of FY01 ARTS tools										
(U)	ARTS ALTERNATE CONTROL SYSTEM										
(U)	Prepare RFP										
(U)	Milestone B Decision										
(U)	Initiate OT&E										
(U)	ARTS MANIPULATOR ARMS										
(U)	Prepare RFP										
(U)	Milestone B Decision										
(U)	Initiate OT&E										
(U)	DEPLOYABLE POWER GENERATION AND DISTRIBUTION										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604617F Agile Combat Support					PROJECT 2895			
(U) E. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
SYSTEM													
(U)	Complete System Requirements and Fix Verifications from OT&E								X				
(U)	Milestone B Decision									X			
(U)	DEPLOYABLE LIGHTWEIGHT MATTING												
(U)	Prepare RFP									X			
(U)	Milestone B Decision										X		
(U)	Initiate OT&E											X	
(U)	MULTIMEDIA TRAINING SYSTEMS (MTS)												
(U)	Complete FY01 Priority List								X				
(U)	Complete FY02 Priority List											X	
(U)	COMMERCIAL TECHNOLOGY EXPLOITATION (CTE)												
(U)	Complete FY01 AFOTEC Evaluation								X				
(U)	Complete FY02 AFOTEC Evaluation											X	
(U)	TACTICAL SHELTERS												
(U)	Complete development									X			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604617F Agile Combat Support			PROJECT 2895		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Contracts					0		1,895		2,475
(U)	Administrative and &Analytic Support (A&AS)					0		696		1,360
(U)	Other Government Agencies					0		500		565
(U)	Materials/Equipment					0		0		105
(U)	Other Technical Support					0		292		865
(U)	Total					0		3,383		5,370
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
ARTS/Attachments	A&AS	Feb 98	2,800	2,800	820	0	531	0	0	1,351
ARTS Alternate Control	FFP	Dec 01	1,600	1,600	0	0	480	735	140	1,355
ARTS Manipulator Arms	FFP	Mar 02	1,933	1,933	0	0	0	1,020	500	1,520
Deployable Power Generation and Distribution System	FFP	Apr 98	2,238	2,238	0	0	0	260	0	260
Lightweight Matting	FFP	Feb 03	1,673	1,673	0	0	0	120	1,600	1,720
Multimedia Training Systems (MTS)	FFP	Cont	14,500	14,500	4,459	0	1,685	1,690	4,558	12,392
Commercial Technology Exploitation (CTE)	FFP	Cont	N/A	N/A	410	0	210	680	Continuing	TBD
Tactical Shelters	AF Form 616	N/A	N/A	N/A	0	0	185	0	0	185
Other Technical Support	Misc	Misc	N/A	N/A	0	0	292	865	Continuing	TBD
<u>Support and Management Organizations</u>										
None.										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE		
								June 2001		
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604617F Agile Combat Support			2895		
(U) Performing Organizations Continued:										
<u>Test and Evaluation Organizations</u>										
Various	Various	Various	N/A	N/A	0	0	0	0	Continuing	TBD
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
*										
Subtotal Product Development					5,689	0	3,383	5,370	TBD	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation					0	0	0	0	TBD	TBD
Total Project					5,689	0	3,383	5,370	TBD	TBD
* Basket Program Element with 20+ years of projects, prior years breakout not available.										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604617F Agile Combat Support					PROJECT 4910	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4910 Aeromedical Readiness	0	0	1,304	692	676	668	282	288	Continuing	TBD
<p>This BPAC was created when funds in PE64703, Aeromedical Systems Development, were consolidated into PE 64617 per House Appropriations Committee guidance.</p> <p>FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) A. Mission Description This program provides tactical and strategic aeromedical evacuation systems, automated information systems, and medical treatment equipment to meet unique Air Force medical readiness and operational requirements</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$340 Deployable Oxygen System (DOS) - Next generation Portable Liquid Oxygen (NPTLOX) prototypes development; conduct test and evaluation. Continue market research and acquisition strategy development for gas and liquid generator systems. (U) \$10 Theater Medical Information Program - Air Force (TMIP-AF) - OT&E preparation, technology refresh, and requirements analysis. (U) \$20 Spinal Cord Injury Transport System (SCITS) - Travel support for production phase of program. (U) \$5 Chemically Hardened Air Transportable Hospital/Chemical-Biological Hardened Air Management Plant (CHATH/CHAMP) - Provide technical support for production. (U) \$200 Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs. Current projects include, but are not limited to, Patient Support Pallets (PSP), Collective Protected Expeditionary Medical Support (CP EMEDS), Latrine, Airborne Command and Control - Information for Global Reach, and Telemedicine. (U) \$562 Provide Technical Engineering and Management Support to Aeromedical programs.</p>										
Project 4910			Page 9 of 12 Pages				Exhibit R-2A (PE 0604617F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001		
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0604617F Agile Combat Support				4910		
(U) <u>A. Mission Description Continued</u>										
(U) <u>FY 2002 (\$ in Thousands) Continued</u>										
(U) \$167 Provide support for the Human Systems Center, System Program Office. Begin transition from research and explore potential technologies for future EMD efforts.										
(U) \$1,304 Total										
(U) <u>B. Project Change Summary</u>										
Program costs changed due to the following reasons:										
- DOS program costs increased to support test and evaluation for the NPTLOX System.										
- SCITS funding required for travel support during the production phase of the program.										
- Human Systems Center, System Program Office Technical Engineering and Management Support task transferred to Aeromedical Systems Analysis program.										
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN	14,257	17,025	15,435	13,899	14,279	14,581	15,200	15,504	Continuing	TBD
APPN is 3080 OPAF - PE 28038										
(U) <u>D. Acquisition Strategy</u>										
All major projects are awarded under full and open competition.										
(U) <u>E. Schedule Profile</u>										
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
				1	2	3	4	1	2	3
(U) DEPLOYABLE OXYGEN SYSTEM										
(U) -FDA Approval									X	
(U) -Conduct Test and Evaluation										X
(U) SPINAL CORD INJURY TRANSPORT SYS										
(U) -Complete Production										X
Project 4910										
Page 10 of 12 Pages										
Exhibit R-2A (PE 0604617F)										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE June 2001					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604617F Agile Combat Support			4910				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>			<u>FY 2001</u>	<u>FY 2002</u>	
(U)	Engineering and Manufacturing Development									210	
(U)	Development/Operational Test and Evaluation									265	
(U)	Contractor Engineering Support									562	
(U)	Miscellaneous (System Program Office Operations)									167	
(U)	Mission Support/Supplies									100	
(U)	Total									1,304	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or</u>	<u>Contract</u>										
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>							
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Organizations</u>											
DOS	FFP	Apr 01	2,770	2,770	0			75	Continuing	TBD	
New Business	Various	Various			17,477			200	Continuing	TBD	
SCITS	CPIF	Jul 98	3,009	3,009				20	Continuing	TBD	
CHATH/CHAMP	CPFF	Aug 95	3,859	3,859	3,609			5	Continuing	TBD	
TMIP/AF	Various	Various	4,278	4,278	1,758			10	Continuing	TBD	
<u>Support and Management Organizations</u>											
TEAMS	Delivery Order	Various			3,061			562	Continuing	TBD	
SPO Operations	Various	Various			3,767			167	Continuing	TBD	
<u>Test and Evaluation Organizations</u>											
Other					140			265	Continuing	TBD	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE	
BUDGET ACTIVITY							June 2001	
05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE			PROJECT	
				0604617F Agile Combat Support			4910	
(U) Government Furnished Property:								
	<u>Contract</u>	<u>Award or</u>						
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Description</u>	<u>Vehicle</u>							<u>Program</u>
<u>Product Development Property</u>								
None.								
<u>Support and Management Property</u>								
None.								
<u>Test and Evaluation Property</u>								
None.								
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
								<u>Program</u>
Subtotal Product Development				22,844			310	TBD
Subtotal Support and Management				6,828			729	TBD
Subtotal Test and Evaluation				140			265	TBD
Total Project				29,812			1,304	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition					PROJECT 3890	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3890 Joint Direct Attack Munitions	11,304	11,055	27,956	0	0	0	0	0	0	355,515
Quantity of RDT&E Articles	8	0	88	0	0	0	0	0	0	605
*Quantity of RDT&E Articles reflect assets by delivery year and cannot be reconciled to the dollar amounts (incremental funding) shown in any one year.										
<p>(U) A. Mission Description Operation DESERT STORM confirmed the need for, and Operation ALLIED FORCE confirmed the utility of a more accurate weapon delivery capability in adverse weather conditions from medium/high altitudes. Failure to satisfy this requirement will allow the enemy to continue to take advantage of the sanctuary of weather and/or prevent US air power from prosecuting a conflict on its terms. The Joint Direct Attack Munition (JDAM) is a joint Air Force and Navy munitions program to correct these shortfalls, with the Air Force as the executive service. JDAM will upgrade the existing inventory of general purpose bombs (Mk-84, BLU-109, Mk-83/BLU-110 and Mk-82/BLU-111) by integrating them with a guidance kit consisting of a Global Position System aided Inertial Navigation System (INS/GPS). JDAM will provide an accurate (13 meters) adverse weather capability. JDAM threshold aircraft are B-52H, F-22, AV-8B and F/A-18C/D. JDAM objective aircraft are B-2, B-1B, F-16, F-15E, and other aircraft. JDAM development was a two-phased Engineering and Manufacturing Development (EMD) effort. EMD Phase I emphasized competitive design and manufacturing processes. This phase completed 10 Oct 95. EMD Phase II emphasized full scale hardware build and flight test to verify system performance and supported OT&E. EMD Phase II ended Dec 00. A development effort to integrate the JDAM guidance kits on the Mk-82 began in September 2000. JDAM Low Rate Initial Production (LRIP) began in FY97 and Full Rate Production (Mk-84 and BLU-109) began in FY01. A redesign effort for the Joint Programmable Fuze (JPF) began Mar 01 to improve high altitude bomber capability. This fuze is a multi-function unitary fuze developed for JDAM and other conventional inventory weapons. JDAM is an Air Force Acquisition Category (ACAT) 1D program.</p>										
<p>(U) FY 2000 (\$ in Thousands)</p>										
(U) \$6,119	Completed development and restriction-free tail assembly for Mk-84 and BLU-109. Completed Mk-83 development activities. Fabricated hardware for F-22 Integration. Performed consolidation of multiple flight software packages as a result of parallel integration on F/A-18 C/D, B-52, B-1, F-16 and B-2. Continued development effort to integrate JDAM guidance kits on the MK-82, including any support equipment or fuze modifications.									
(U) \$4,994	Provided test support for completion of operational test activities, flight software consolidation and conducted JPF wind tunnel testing. Conducted risk definition study to integrate Mk-82 JDAM on the B-1 and B-2.									
(U) \$191	Provided support and management tasks to coordinate the program activities of the prime contractor and various test and aircraft organizations.									
(U) \$11,304	Total									
Project 3890			Page 1 of 6 Pages				Exhibit R-2 (PE 0604618F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
		June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0604618F Joint Direct Attack Munition	3890		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2000 (\$ in Thousands) Continued</u>				
Note: Does not reflect \$4.0M reprogrammed for JPF redesign effort.				
(U) <u>FY 2001 (\$ in Thousands)</u>				
(U) \$3,751	Continued development effort for Mk-82 JDAM. Completed consolidation and test of flight software. Supported F-22 integration analysis and testing.			
(U) \$6,459	Provided flight test support for Mk-82 flight software consolidation. Supported F-22 integration testing.			
(U) \$845	Provided support and management tasks to coordinate the program activities of the prime contractor and various test and aircraft organizations.			
(U) \$11,055	Total			
(U) <u>FY 2002 (\$ in Thousands)</u>				
(U) \$10,552	Complete development effort for Mk-82 JDAM and JPF redesign.			
(U) \$11,960	Perform captive carry and DT flight testing on Mk-82 JDAM and perform JPF testing.			
(U) \$1,744	Provide support and management tasks to coordinate the program activities of the prime contractor and various test and aircraft organizations.			
(U) \$3,700	Continued development of fuzing hardware for high altitude bomber operations.			
(U) \$27,956	Total			
(U) <u>B. Budget Activity Justification</u>				
This program is funded in Budget Activity 5, EMD, due to its focus on devising an affordable design and manufacturing process.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	6,299	1,157	1,564	314,220
(U) Appropriated Value	6,299	1,157		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-78		-78
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram				
e. Rescissions	-27	-24		-51
(U) Adjustments to Budget Years Since FY 2001 PBR	5,032	10,000	26,392	41,424
Project 3890	Page 2 of 6 Pages			Exhibit R-2 (PE 0604618F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition					PROJECT 3890		
(U) C. Program Change Summary (\$ in Thousands) Continued												
					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			<u>Total Cost</u>		
(U)	Current Budget Submit/FY 2002 PBR				11,304	11,055	27,956			355,515		
(U) Significant Program Changes:												
FY00: Numbers do not reflect \$4M reprogrammed for the redesign JPF effort.												
FY01: \$10M Congressional add to begin JDAM Mk-82 development effort												
FY02: \$14M AF Budget request to complete JDAM Mk-82 development effort; \$8.6M to redesign Joint Programmable Fuze (JPF); \$3.7M for continued development of fuzing hardware.												
(U) D. Other Program Funding Summary (\$ in Thousands)												
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	(U) Procurement of Ammunition, Air Force, P-1 Line Item JDAM (PE 27583F)	189,222	214,870	187,110	187,836	192,460	192,868	100,622			1,406,735	
(U)	(U) Seek Eagle (PE 27590F)	0	0	147	302	145	0	0	105	0	699	
(U) E. Acquisition Strategy												
The contract for the JDAM Mk-82 effort is Cost Plus Award Fee. The JPF effort is a fixed price incentive fee (FPI) contract. Procurement Lots 1-5 have been awarded and Lots 6-11 have a Production Price Commitment Curve agreement.												
(U) F. Schedule Profile												
					<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
					1	2	3	4	1	2	3	4
(U)	Milestone III (2000 lb)								*			
(U)	Milestone III (1000 lb)									X		
(U)	MK-84 Development and Operational Test (DT/OT) Finish							*				
(U)	MK-84 Initial Operational Test & Eval (IOT&E) Finish							*				
(U)	BLU-109 IOT&E Finish							*				
(U)	MK-83 DT Flight Tests Finish							*				
Project 3890		Page 3 of 6 Pages					Exhibit R-2 (PE 0604618F)					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition					PROJECT 3890		
(U) F. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) MK-82 Design/Development Start/Finish				*							X	
(U) MK-82 DT Flight Test Start										X		
(U) MK-82 CDR									X			
(U) JPF Redesign Start						*						
(U) JPF Testing Start								X				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604618F Joint Direct Attack Munition			PROJECT 3890		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Primary Hardware Development					6,119		3,751		14,252
(U)	Test & Evaluation					4,994		6,459		11,960
(U)	Engineering & Prog Mgt Support					191		845		1,744
(U)	Total					11,304		11,055		27,956
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Prime Contractors Boeing (St Louis, MO)	C/CPAF	Oct-95	201,575	201,575	184,603	6,119	3,751	7,102	0	201,575
FY94/95 Only										
Dayron (JPF)	FPIF	Dec-01	3,450	3,450				3,450		3,450
Conceptual Studies	Various	Various	N/A	N/A	22,428	0	0		0	22,428
Fuze Development	TBD	TBD	3,700	3,700				3,700		3,700
<u>Support and Management Organizations</u>										
Engineering Spt.	CPAF	Oct 96	13,698	13,168	12,558	0	310	830	0	13,698
TAMS Contractor	CPAF	Oct 96	5,216	5,046	4,502	0	280	434	0	5,216
Program Office	Various	Various	N/A	N/A	17,231	191	255	480	0	18,157
<u>Test and Evaluation Organizations</u>										
Aircraft SPO/PMA Supt.	Various	Various	N/A	N/A	12,811	808	0	0	0	13,619
Flight Testing	Various	Various	N/A	N/A	35,408	2,700	5,009	11,283		54,408
Ground Testing	Various	Various	N/A	N/A	11,324	0	1,450	677		13,451
JPF Wind Tunnel Testing	TBD	TBD	N/A	N/A		1,486	0	0		1,486
GFE	Various	Various	N/A	N/A	4,335	0	0	0		4,335

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604703F Aeromedical Systems Development					PROJECT 2866		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2866	Aeromedical/Casualty Care Systems Dev	5,297	5,874	0	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>This PE has been consolidated into PE64617, BPAC 654910 effective FY02 The FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) <u>A. Mission Description</u> The Program Element provides tactical, strategic aeromedical evacuation systems, automated information systems, and medical treatment equipment to meet unique Air Force medical readiness and operational requirements.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$1,178 Spinal Cord Injury Transport System (SCITS) - Completed DT&E, conducted OT&E, and continued EMD.</p> <p>(U) \$6 Chemically Hardened Air Transportable Hospital/Chemical-Biological Hardened Air Management Plant (CHATH/CHAMP) - Provided technical support for production.</p> <p>(U) \$1,789 Theater Medical Information Program - Air Force (TMIP- AF) - Awarded EMD integration contract to design and develop a prototype, and conducted development and operational tests for the AF-TMIP Global AIS infrastructure, including communications and security upgrades. Integrated TMIP Program Management Office (PMO), an ACAT I program, software delivery and conducted OT&E in conjunction with the TMIP-PMO.</p> <p>(U) \$539 Deployable Oxygen System (DOS) -Conducted risk analysis and completed market analysis in preparation for RFP release in FY01.</p> <p>(U) \$635 Aeromedical Systems Analysis - Conducted foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs.</p> <p>(U) \$1,150 Provided support for the Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor.</p> <p>(U) \$5,297 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$300 SCITS - Complete OT&E, EMD and support production.</p> <p>(U) \$119 TMIP-AF - Support HQ USAF/SGXR and Air Force Medical Logistics Office (AFMLO) to execute medical information infrastructure deployment per user fielding plan. Integrate and test pre-planned product improvements relative to block releases of the DoD-Level system.</p> <p>(U) \$2,249 DOS - Next generation Portable Liquid Oxygen (NPTLOX) System product improvement program begins; design & development.</p>											
Project 2866				Page 1 of 6 Pages				Exhibit R-2 (PE 0604703F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																													
		June 2001																																													
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																													
05 - Engineering and Manufacturing Development	0604703F Aeromedical Systems Development	2866																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(U) \$10 CHATH/CHAMP - Provides technical support for production</p> <p>(U) \$1,845 Aeromedical Systems Analysis - Conduct foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and define acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs. Current projects include, but are not limited to, Patient Support Pallets (PSP), Collective Protected Expeditionary Medical Support (CP EMEDS), Latrine, and Telemedicine.</p> <p>(U) \$1,080 Provide Technical Engineering and Management Support to Aeromedical programs.</p> <p>(U) \$271 Provide support for the Human Systems Center, System Program Office.</p> <p>(U) \$5,874 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR = -331K; SBIR = -200K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 5 - Engineering and Manufacturing Development because it supports development of systems for treatment, evacuation, and prediction of wartime casualties in a conventional or non-conventional warfare environment.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">7,027</td> <td style="text-align: right;">5,929</td> <td style="text-align: right;">2,040</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">7,135</td> <td style="text-align: right;">5,929</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: right;">-423</td> <td style="text-align: right;">-42</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: right;">-204</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td style="text-align: right;">-1,183</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: right;">-28</td> <td style="text-align: right;">-13</td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	7,027	5,929	2,040	TBD	(U) Appropriated Value	7,135	5,929			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-423	-42			b. Small Business Innovative Research	-204				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-1,183				e. Rescissions	-28	-13		
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Project 2866	Page 2 of 6 Pages	Exhibit R-2 (PE 0604703F)																																													

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE						
							June 2001						
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT						
05 - Engineering and Manufacturing Development				0604703F Aeromedical Systems Development			2866						
(U) C. Program Change Summary (\$ in Thousands) Continued													
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>					
(U)	Adjustments to Budget Years Since FY 2001 PBR					-2,040							
(U)	Current Budget Submit/FY 2002 PBR			5,297	5,874	0		TBD					
(U)	<u>Significant Program Changes:</u>												
	Funding: 32K of FY 2000 funds have been identified as a source for other Air Force priorities. FY 2001 funds reflected throughout this documentation do not reflect the following reductions: SBIR = -200K; BTR = -331K. FY 2002 funds were transferred to the Agile Combat Support program, PE 64617F, Project 4910.												
(U) D. Other Program Funding Summary (\$ in Thousands)													
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U)	Other Procurement, AF, PE 28038F, Other Base and Maintenance Support, Medical/Dental Equipment			14,257	17,025	15,435	13,899	14,279	14,581	15,200	15,504	Continuing	TBD
(U) E. Acquisition Strategy													
	All major projects within this Program Element are awarded under full and open competition.												
(U) F. Schedule Profile													
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>			
				1	2	3	4	1	2	3	4		
(U)	SPINAL CORD INJURY TRANSPORT SYS												
(U)	-Begin OT&E												
(U)	-Begin Production												
(U)	DEPLOYABLE OXYGEN SYSTEM (DOS)												
(U)	-RFP Release												
(U)	-Contract Award/Begin EMD												
(U)	TMIP-AF												
(U)	-Award Global Design EMD contract												
(U)	-Initiate System Level OT&E												

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001																																																	
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								X																																																			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604703F Aeromedical Systems Development			2866		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Engineering and Manufacturing Development					3,185		4,073		
(U)	Development/Operational Test and Evaluation					978		200		
(U)	Contractor Engineering Support					778		1,080		
(U)	Miscellaneous (System Program Office Operations)					202		271		
(U)	Mission Support/Supplies					154		250		
(U)	Total					5,297		5,874		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
CHATH/CHAMP Phase	CPFF	Aug 95	3,853	3,853	3,609	0	10		0	3,619
II-ERDEC										
SCITS	CPIF	Jul 98	2,768	2,800	400	100	100		0	600
DOS (formally AHOS)	TBD	TBD	TBD	TBD	0	813	2,249		Continuing	TBD
TMIP-AF	Various	Various	4,278	4,278	1,758	1,530	119		0	3,407
New Business-	Various	Various			17,477	642	1,845		Continuing	TBD
Mission Support	Various	Various			532				Continuing	TBD
<u>Support and Management Organizations</u>										
TEAMS-OpTech, McDonald Tech, MTC	Delivery Order	Various			3,061	778	1,080		Continuing	TBD
SPO Operations	Various	Various			3,767	356	271		Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Aberdeen Prov. Grnd						2	0	0	Continuing	TBD
Other						138	1,078	200	Continuing	TBD
Project 2866					Page 5 of 6 Pages	Exhibit R-3 (PE 0604703F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604703F Aeromedical Systems Development			PROJECT 2866		
(U) Government Furnished Property:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				23,776	3,085	4,323		TBD	TBD
Subtotal Support and Management				6,828	1,134	1,351		TBD	TBD
Subtotal Test and Evaluation				140	1,078	200		TBD	TBD
Total Project				30,744	5,297	5,874		TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604706F Life Support Systems					PROJECT 412A		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
412A	Life Support Systems	11,113	26,215	4,586	1,244	301	292	3,378	3,451	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	Continuing	TBD
<p>Note: The FY03-FY07 budget numbers do not reflect DoD's strategic review results.</p> <p>(U) A. Mission Description This program provides for Engineering and Manufacturing Development (EMD) of life support equipment and subsystems to satisfy operational command requirements for improved life support equipment. There are six main projects in this PE. (1) The Advanced Concept Ejection Seat (ACES) II Cooperative Modification Program (CMP) develops modifications for ACES II to accommodate light/heavy weight aircrew members and high speed ejection. (2) The Inflatable Restraint (IR) project leverages inflatable bag technology to improve ejection safety. (3) The Advanced Technology Anti-Gravity Suit (ATAGS) replaces the current G-suit, enabling aircrew members to endure the high G-forces of modern aircraft. (4) The Aircrew Laser Eye Protection (ALEP) project will provide aircrews with eye protection against a variety of laser devices which could cause a permanent loss of vision. (5) The Fixed Aircrew Standardized Seat (FASS) Program seeks to evaluate and standardize seat systems and subsystems in non-ejection seat aircraft. (6) The Joint Ejection Seat Program (JESP) will improve aircrew safety by the developing systems or system components which reduce or eliminate performance compromises of current escape systems. This PE also provides for the continuing development of life support items and subsystems such as the following: flight helmets, oxygen breathing equipment for aviators, survival radios, night vision devices, active/passive noise reduction devices, aircraft seating, and parachutes. Program management support includes tasks to assess deficiencies of currently fielded equipment, provide for the transition of new technology into EMD, and to support all current life support projects.</p> <p>(U) FY 2000 (\$ in Thousands)</p> <p>(U) \$3,000 Congressional Add for Continuation of EMD for Ejection Seat IR</p> <p>(U) \$2,500 Congressional Add for Life Support Systems; Used to Continue EMD of ATAGS (\$1.4M) and Begin Fixed Aircrew Seat Standardization Study (\$1.1M)</p> <p>(U) \$1,500 Continued ALEP EMD</p> <p>(U) \$3,208 Continued ACES II CMP EMD</p> <p>(U) \$905 Program Management/Technical Support/Travel/Test & Evaluation Support</p> <p>(U) \$11,113 Total</p>											
Project 412A			Page 1 of 7 Pages				Exhibit R-2 (PE 0604706F)				

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<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$10,250 Congressional Add for Joint Ejection Seat Program Development Contract</p> <p>(U) \$4,000 Congressional Add for ACES II Ejection Seat Digital Sequencer and Aircrew Accommodations</p> <p>(U) \$3,700 Congressional Add for Fixed Aircrew Standardized Seats</p> <p>(U) \$2,150 Continue Aircrew Laser Eye Protection EMD</p> <p>(U) \$3,313 Complete ACES II Cooperative Modification Program EMD</p> <p>(U) \$504 Complete ATAGS EMD and Production Support Costs</p> <p>(U) \$1,000 Continue development of other Life Support items and subsystems</p> <p>(U) \$1,298 Program Management/Technical Support/Travel/Test & Evaluation Support.</p> <p>(U) \$26,215 Total</p> <p>Note: The following net transactions are not reflected in the FY01 program total: BTR= +522K; SBIR= -889K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$3,877 Continue ALEP EMD</p> <p>(U) \$609 Program Management/Technical Support/Travel/Test & Evaluation support</p> <p>(U) \$100 Continue development of other Life Support items and subsystems</p> <p>(U) \$4,586 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>Program is in Budget Activity 5 because several projects are in Acquisition Phase II, EMD</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: right;"><u>FY 2000</u></th> <th style="width: 10%; text-align: right;"><u>FY 2001</u></th> <th style="width: 10%; text-align: right;"><u>FY 2002</u></th> <th style="width: 10%; text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">11,473</td> <td style="text-align: right;">14,758</td> <td style="text-align: right;">14,121</td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">11,473</td> <td style="text-align: right;">26,458</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-97</td> <td style="text-align: right;">-185</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-218</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	11,473	14,758	14,121		(U) Appropriated Value	11,473	26,458			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-97	-185			b. Small Business Innovative Research	-218				c. Omnibus or Other Above Threshold Reprogram				
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Project 412A	Page 2 of 7 Pages	Exhibit R-2 (PE 0604706F)																																			

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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604706F Life Support Systems			PROJECT 412A				
(U) C. Program Change Summary (\$ in Thousands) Continued											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Total Cost</u>			
	d. Below Threshold Reprogram										
	e. Rescissions	-45	-58								
(U)	Adjustments to Budget Years Since FY 2001 PBR			-9,535							
(U)	Current Budget Submit/FY 2002 PBR	11,113	26,215	4,586				TBD			
(U) Significant Program Changes:											
FY 2000 Congressional Add: \$3.0M for EMD of Ejection Seat Inflatable Restraints; \$2.5M for Life Support Systems											
FY 2001 Congressional Add: \$10.25M for JESP; \$4.0M for ACES II CMP; and \$3.7M for Fixed Aircrew Standardized Seats											
FY 2002 New Start Slip -\$5.0M; IBRC Reduction -\$4.5M; CGR -\$62K; Non Pay Purchase Inflation +\$27K											
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Item Less Than \$5M (Safety Equipment) PE 0702833F: Advanced Technology Anti-G Suit (ATAGS)		555							0	555
(U)	Item Less Than \$5M (Safety Equipment) PE 0702833F: Aircrew Laser Eye Protection (ALEP) FY00 Congressional Add for Laser Eye Protection (\$2.4M)	2,400	1,200	2,800	4,520	3,920	1,400			0	16,240
(U) E. Acquisition Strategy											
Acquisition strategy is carried out at the project level. (1) Advanced Concept Ejection Seat (ACES) II Cooperative Modification Program is a joint project between the US and Japan where the US is responsible for improved seat stability and Japan is responsible for improved limb restraints and accommodations for lightweight aircrew. The US contracts are Sole Source with the Enhanced Drogue Chute and seat modifications engineered by Boeing/MDA through a Cost Plus Fixed Fee Contract. The Engineering and Manufacturing Development (EMD) effort is to be performed by Boeing through a Cost Plus Fixed Fee contract and Cost Plus Incentive Fee Contract. (2) The acquisition strategy for the Inflatable Restraint Program is a Cost Plus Incentive Fee for early-EMD. (3) The ATAGS project consists of a Sole Source contract with Mustang on a Cost Plus Fixed Fee contract to conduct Development Testing and Evaluation (DT&E) Support for the baseline ATAGS (F-22 ATAGS complete).											
Project 412A				Page 3 of 7 Pages				Exhibit R-2 (PE 0604706F)			

UNCLASSIFIED

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<p>(U) <u>E. Acquisition Strategy Continued</u> (4) The ALEP acquisition strategy consists of a full and open PDRR contract to two contractors as well as a full and open EMD contract with two contractors with a downselect to one contractor for production. (5) The Fixed Aircrew Standardized Seat EMD effort will be an engineering services contract. (6) The acquisition strategy for the Joint Ejection Seat Program (JESP) will be two Cost Plus Fixed Fee development contracts with FY01 funding divided according to contractor needs.</p>																																																																																																																																																																																																																																																																																												
<p>(U) <u>F. Schedule Profile</u></p> <table border="0"> <thead> <tr> <th></th> <th colspan="4"><u>FY 2000</u></th> <th colspan="4"><u>FY 2001</u></th> <th colspan="4"><u>FY 2002</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) ACES II Complete Detail Design</td> <td>*</td> <td></td> </tr> <tr> <td>(U) ACES II Sled Test Completion</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ACES II OT&E Completed</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ACES II Digital Sequencer Qual Start</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ACES II Structural Improvement Task</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Inflatable Restraint Early EMD Kt Award</td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Inflatable Restraint ASIT Completion</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ATAGS Complete IOT&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ATAGS First Production Delivery FY02</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>(U) Fixed Seat PDRR Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Fixed Seats DT&E/OT&E</td> <td></td> <td>X</td> </tr> <tr> <td>(U) ALEP PDRR Contract Award</td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) ALEP EMD Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>(U) ALEP Complete DT&E EMD (2Q FY03)</td> <td></td> </tr> <tr> <td>(U) ALEP Complete IOT&E EMD (3Q FY03)</td> <td></td> </tr> <tr> <td>(U) ALEP Production Award (3Q FY03)</td> <td></td> </tr> <tr> <td>(U) Joint Ejection Seat Program (JESP)--Contract Award Phase I</td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Joint Ejection Seat Program (JESP)--Contract Award Phase II</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Joint Ejection Seat Program (JESP)--Program Completion (FY05)</td> <td></td> </tr> </tbody> </table> <p>* = completed event X = planned event</p>													<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) ACES II Complete Detail Design	*												(U) ACES II Sled Test Completion							*						(U) ACES II OT&E Completed								X					(U) ACES II Digital Sequencer Qual Start							*						(U) ACES II Structural Improvement Task							*						(U) Inflatable Restraint Early EMD Kt Award				*									(U) Inflatable Restraint ASIT Completion						*							(U) ATAGS Complete IOT&E						*							(U) ATAGS First Production Delivery FY02										X			(U) Fixed Seat PDRR Contract Award								X					(U) Fixed Seats DT&E/OT&E												X	(U) ALEP PDRR Contract Award				*									(U) ALEP EMD Contract Award										X			(U) ALEP Complete DT&E EMD (2Q FY03)													(U) ALEP Complete IOT&E EMD (3Q FY03)													(U) ALEP Production Award (3Q FY03)													(U) Joint Ejection Seat Program (JESP)--Contract Award Phase I					*								(U) Joint Ejection Seat Program (JESP)--Contract Award Phase II									X				(U) Joint Ejection Seat Program (JESP)--Program Completion (FY05)												
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604706F Life Support Systems			PROJECT 412A		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Contracts					7,179		20,686		3,750
(U)	Technical Engineering Support					2,136		1,566		519
(U)	Travel					141		232		50
(U)	Government Testing					893		3,227		200
(U)	Program Management/Technical Support and Misc.					764		504		67
(U)	Total					11,113		26,215		4,586
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
UPCO-Inflatable Rest	SS/CPAF	Aug 99	2,053	2,053	2,157	0	0	0	Continuing	TBD
Entran Devices-ACES II	FFP	Sep 99	39	39	39	0	0	0	Continuing	TBD
Boeing-ACES II Struc Def	SS/CPFF	Dec 99	200	200	0	0	0	0	Continuing	TBD
ATA Sensors-ACES II	FFP	Mar 00	31	31	0	0	0	0	Continuing	TBD
Gemini Elect Co-ACES II	FFP	May 99	9	9	9	0	0	0	Continuing	TBD
Denton, Inc-ACES II	FFP	Sep 99	47	47	47	0	0	0	Continuing	TBD
First Tech Sys-ACES II	FFP	Oct 99	393	393	193	0	0	0	Continuing	TBD
Boeing-ACES II --Study	SS/CPFF	Aug 99	237	237	37	0	0	0	Continuing	TBD
Pioneer Aerospace-ACES II	FFP	Jan 99	9	9	9	0	0	0	Continuing	TBD
EME Corp-ACES II	FFP	Mar 00	244	244	0	205	0	0	Continuing	TBD
ITT-NVS	C/CPIF	18 Jan 93	14,081	14,081	14,081	0	0	0	Continuing	TBD
KRUG-ATAGS	SS/FFP	7 July 97	424	424	424	0	0	0	Continuing	TBD
Mustang-ATAGS	SS/FFP	Sep 97	499	499	499	630	310	0	Continuing	TBD
ALEP - (AL/Navy)	C/CPFF	Jun 97	4,552	4,552	4,552	0	0	0	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE June 2001	
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
05 - Engineering and Manufacturing Development					0604706F Life Support Systems					412A	
(U) Performing Organizations Continued:											
<u>Product Development Organizations</u>											
MDA-Enhanced Drogue	SS/CPFF	Jun 97	1,130	1,130	1,130	0	0	0	Continuing	TBD	
MDA-ACES II Seats	SS/FFP	Sept 97	150	150	150	0	0	0	Continuing	TBD	
SRL-ATAGS DT&E Support	SS/CPFF	Dec 97	150	150	150	0	0	0	Continuing	TBD	
Boeing-ACES II Pre-EMD	SS/CPFF	Feb 98	250	250	250	0	0	0	Continuing	TBD	
Brooks AFB, Supply	Supply Reqt	Feb 98	311	311	301	0	0	0	Continuing	TBD	
Contax	SS/FFP	Apr 98	11	11	11	0	0	0	Continuing	TBD	
Boeing-ACES II EMD	SS/CPIF	Dec 98	5,004	5,004	0	2,555	1,008	0	Continuing	TBD	
Boeing-ACES II EMD (Structural)	SS/CPFF	Jun 00				412	422	0	Continuing	TBD	
BFG-UpCO through Hill AFB (ACES II)	TBD	Jan 01					3,000	0	Continuing	TBD	
Pax River	AF 185	Aug 99	147	147	0	0	0	0	Continuing	TBD	
Holloman AFB	AF 185	Nov 99	5	5	0	0	0	0	Continuing	TBD	
ALEP PDRR	CPFF	Sep 00	TBD	3,551	0	1,116	2,762	0	Continuing	TBD	
ALEP EMD	TBD	TBD	TBD	4,252	0	0		3,750	Continuing	TBD	
Fixed Seats	TBD				0	900	2,518	0	Continuing	TBD	
Inflatable Restraints Early EMD	C/CPIF	Sep 00	3,000	3,000	0	2,143	0	0	Continuing	TBD	
Life Support Systems, TBD JESP	TBD	TBD	2,500	2,500	0	0	0	10,100	0	Continuing	TBD
<u>Support and Management Organizations</u>											
Program Management Support			5,601	5,601	2,878	234	1,336	67	Continuing	TBD	
Travel			1,273	1,273	581	141	279	50	Continuing	TBD	
Tech Engr. & Acq			6,941	6,941	3,058	2,040	1,540	519	Continuing	TBD	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604706F Life Support Systems				PROJECT 412A		
(U) Performing Organizations Continued:										
<u>Test and Evaluation Organizations</u>										
Edwards Test Facility	AF 185		100	100	0	0	0	0	Continuing	TBD
ALEP Testing Agency	TBD					325	0	200	Continuing	TBD
Fixed Seats Testing Agency	TBD						921			921
AFOTEC					82				Continuing	TBD
46th Test Wing					85				Continuing	TBD
AFFTC	Proj		3,146	3,146	3,146	0	0	0	Continuing	TBD
	Ord-Variou									
AL/CF	Various		179	179	179	0	0	0	Continuing	TBD
Navy Testing for Inflatable						173			Continuing	TBD
Holloman	Various		2,864	2,864	164	174	2,019	0	Continuing	TBD
AFRL (incl. Ejection Seat Effort)	Various		4,951	4,951	1,337	65	0	0	Continuing	TBD
(U) Government Furnished Property:										
	<u>Contract</u>									
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
ALEP		TBD			12	0	0	0	6	18
<u>Support and Management Property</u>										
<u>Test and Evaluation Property</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					24,051	7,961	20,120	3,750	TBD	TBD
Subtotal Support and Management					6,517	2,415	3,155	636	TBD	TBD
Subtotal Test and Evaluation					4,993	737	2,940	200	TBD	TBD
Total Project					35,561	11,113	26,215	4,586	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter					
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	2,595	0	0	0	0	0	0	0	Continuing	TBD
2505 Aircraft Firefighting Suppression And Rescue	2,416	0	0	0	0	0	0	0	Continuing	TBD
2674 Tactical Shelters	179	0	0	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

The Air Force is in the process of consolidating three small dollar Civil Engineer (CE) readiness R&D programs (PE64617f - Agile Combat Support; PE64708f - Civil , Fire, Environmental, Shelters; and the 3600 portion of PE28031f - War Reserve Material) under PE 64617. This will meet the intent of the House action to eliminate smaller PEs and provide a more cohesive, manageable CE Readiness modernization effort.

(U) **A. Mission Description**

This program funds the development, testing and evaluation of materials, equipment and procedures in the following areas:

(1) Aircraft Fire Fighting, Suppression and Rescue and Civil Engineer (CE) Readiness/Force Protection (FP). CE readiness is supported by multimedia training systems for Fire Fighting, CE Readiness/FP, including Explosive Ordnance Disposal (EOD) by developing interactive training scenarios which simulate hazardous situations, allows both training and testing of response capabilities, and complements field training while reducing time, cost and direct exposure to hazards. Develops, tests and evaluates new concepts and technology applications for fire fighting, suppression and rescue and CE Readiness/FP to improve rapid deployment capabilities in support of bare base/Air Expeditionary Forces (AEF), contingency operating areas and main operating bases.

(2) Tactical Shelters is the USAF portion of a tri-service effort to develop standardized, low maintenance, highly survivable shelters and shelter accessories that are easily mobilized and compatible with air, sea and land transport systems. These products will effectively support high mobility aircraft support, command and control, communications, medical, and data processing units for the tactical and strategic forces. These shelters also optimize the latest enhancements of force protection technology.

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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development		PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter																																																								
<p>(U) <u>B. Budget Activity Justification</u> This program is in budget activity five, Engineering and Manufacturing Development, because it takes emerging technologies and concepts and develops them for Air Force use.</p>																																																										
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">2,768</td> <td style="text-align: right;">2,824</td> <td></td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">2,719</td> <td style="text-align: right;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-2</td> <td style="text-align: right;">0</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-94</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-28</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td style="text-align: right;">0</td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">2,595</td> <td style="text-align: right;">0</td> <td></td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table>					<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	2,768	2,824			(U) Appropriated Value	2,719	0			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-2	0			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram	-94				d. Below Threshold Reprogram					e. Rescissions	-28				(U) Adjustments to Budget Years Since FY 2001 PBR		0			(U) Current Budget Submit/FY 2002 PBR	2,595	0		TBD
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<p>(U) <u>Significant Program Changes:</u> HAC moved FY01 funds to PE64617.</p>																																																										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001																																		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter					PROJECT 2505																																	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost																																	
2505 Aircraft Firefighting Suppression And Rescue	2,416	0	0	0	0	0	0	0	Continuing	TBD																																	
<p>(U) <u>A. Mission Description</u> Aircraft Fire Fighting, Suppression and Rescue and Civil Engineer (CE) Readiness/Force Protection (FP). CE readiness is supported by multimedia training systems for Fire Fighting, CE Readiness/FP, including(Explosive Ordnance Disposal (EOD) by developing interactive training scenarios which simulate hazardous situations, allows both training and testing of response capabilities, and complements field training while reducing time, cost and direct exposure to hazards. Develops, tests and evaluates new concepts and technology applications for fire fighting, suppression and rescueand CE Readiness/FP to improve rapid deployment capabilities in support of bare base/Air Expeditionary Force (AEF), contingency operating areas and main operating bases.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$2,106 Continued courseware development of CE/MTS. (U) \$160 Continued commercial technology exploitation. (U) \$150 Other technical support. (U) \$2,416 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity; funding incorporated into PE64617F (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>B. Project Change Summary</u> Program consolidated under PE 64617 effective FY01.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;"></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) N/A</td> <td></td> </tr> </tbody> </table>												<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) N/A																
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																		
(U) N/A																																											
Project 2505			Page 3 of 10 Pages				Exhibit R-2A (PE 0604708F)																																				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)						DATE June 2001																																																																																																																																																																																																	
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<p>(U) <u>D. Acquisition Strategy</u> Multimedia courseware materials and commercial technology items will continue to be developed, tested, modified and readied for production and procurement by field units. Commercial technology exploitation provides extremely low cost, yet high value suitability testing of low dollar commercial equipment with potential for military application. Items are proposed each year by field units and published test reports provide recommendations about whether or not to procure items.</p>																																																																																																																																																																																																							
<p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="3" style="text-align: center;"><u>FY 2000</u></th> <th colspan="3" style="text-align: center;"><u>FY 2001</u></th> <th colspan="3" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th style="width:40%;"></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) CE Multimedia Training Systems</td> <td></td> </tr> <tr> <td>(U) Complete HAZMAT Technician</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete Emerg Response to Terrorism</td> <td></td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) Complete T.O. 00105E-9</td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) Complete 4 HAZMAT Courses</td> <td></td> </tr> <tr> <td>(U) Complete CRAF for 737/757/777 Aircraft</td> <td></td> </tr> <tr> <td>(U) Fire Commercial Technology</td> <td></td> </tr> <tr> <td>(U) Complete Mobile Fire Training System</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete AIM Safety Detectors</td> <td></td> <td></td> <td style="text-align: center;">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Complete Help Mate Telephone System</td> <td></td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td>(U) Complete FD On-Scene</td> <td style="text-align: center;">*</td> <td></td> </tr> <tr> <td colspan="13">* = Completed Milestone</td> </tr> <tr> <td colspan="13">X = Planned Milestone</td> </tr> </tbody> </table>									<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) CE Multimedia Training Systems													(U) Complete HAZMAT Technician			*										(U) Complete Emerg Response to Terrorism		*											(U) Complete T.O. 00105E-9	*												(U) Complete 4 HAZMAT Courses													(U) Complete CRAF for 737/757/777 Aircraft													(U) Fire Commercial Technology													(U) Complete Mobile Fire Training System			*										(U) Complete AIM Safety Detectors			*										(U) Complete Help Mate Telephone System		*											(U) Complete FD On-Scene	*												* = Completed Milestone													X = Planned Milestone												
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Project 2505				Page 4 of 10 Pages				Exhibit R-2A (PE 0604708F)																																																																																																																																																																																															

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter			PROJECT 2505			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Contracts					1,083					
(U)	A&AS Support					200					
(U)	Other Government Agencies					883					
(U)	Materials/Equipment					100					
(U)	Other Technical Support					150					
(U)	Total					2,416					
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
		<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Multimedia Training Sys	Mult	Cont	14,500	14,500	2,597	2,118			Continuing	TBD
	Fire Commercial Technology	Mult	Cont	1,500	1,500	250	160			Continuing	TBD
	Exploitation										
	<u>Support and Management Organizations</u>										
	Various			1,950	1,950	442	150			Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
	Various			750	750	70	0			0	70
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
		<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Product Development Property</u>										
	None										
Project 2505					Page 5 of 10 Pages	Exhibit R-3 (PE 0604708F)					

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
05 - Engineering and Manufacturing Development		0604708F Civil, Fire, Environmental, Shelter			June 2001	
BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
(U) <u>Government Furnished Property Continued:</u>						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
	<u>Subtotals</u>					
	Subtotal Product Development	2,847	2,278			TBD
	Subtotal Support and Management	442	150			TBD
	Subtotal Test and Evaluation	70	0			0
	Total Project	3,359	2,428			TBD
						TBD
						70
						TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter	PROJECT 2674
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2674 Tactical Shelters	179	0	0	0	0	0	0	0	Continuing	TBD

- (U) **A. Mission Description**
Provides reliable, cost effective tactical shelters required to ensure the success of Air Force missions, provides Air Force membership in the DOD Tactical Shelter Program, and provides technology insertion for shelter development.
- (U) **FY 2000 (\$ in Thousands)**
- (U) \$66 Continued research, development and acquisition of composite tactical shelter.
- (U) \$102 Established capability to evaluate shelter design and performance and perform shelter integration analysis.
- (U) \$11 Provided direct feedback and ensure Air Force requirements are identified to JOCOTAS and ASTM.
- (U) \$179 Total
- (U) **FY 2001 (\$ in Thousands)**
- (U) \$0 No Activity
- (U) \$0 Total
- (U) **FY 2002 (\$ in Thousands)**
- (U) \$0 No Activity
- (U) \$0 Total
- (U) **B. Project Change Summary**
Project consolidated under PE 64617 effective FY01
- (U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) N/A										

- (U) **D. Acquisition Strategy**
Tactical shelters development will continue to support Initial Deployable Kitchen (IDK) Program

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)											DATE											
BUDGET ACTIVITY						PE NUMBER AND TITLE						PROJECT										
05 - Engineering and Manufacturing Development						0604708F Civil, Fire, Environmental, Shelter						2674										
(U) <u>E. Schedule Profile</u>																						
											<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>							
											1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter			PROJECT 2674			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	MERWS (modular extendible ridged wall shelter) program										
(U)	Composite Shelter Development					66					
(U)	Shelter design, performance and analysis					102					
(U)	JOCOTAS program					11					
(U)	Total					179					
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	MERWS Pgm	Multiple	Multiple			0				0	
	Composite Shelter Dev	Multiple	Multiple			66			Continuing	TBD	
	Shelter design, performance, and analysis	Multiple	Multiple			102			Continuing	TBD	
	JOCOTAS Pgm	Multiple	Multiple			11			Continuing	TBD	
	<u>Support and Management Organizations</u>										
	N/A					0				0	
	<u>Test and Evaluation Organizations</u>										
	N/A					0				0	
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604708F Civil, Fire, Environmental, Shelter			PROJECT 2674		
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					179			TBD	TBD
Subtotal Support and Management					0				0
Subtotal Test and Evaluation					0				0
Total Project					179			TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604727F Joint Standoff Weapons Systems					PROJECT 1000	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1000	Joint Standoff Weapons Systems	9,621	1,485	0	0	0	0	0	0	0	194,413
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

The Joint Standoff Weapon (JSOW) is a joint USAF/USN program with the USN as the lead service. JSOW is a Global Position System aided Inertial Navigation System (GPS/INS) precision glide weapon with a stealthy, kinematically efficient airframe. JSOW provides all-weather launch/leave standoff capability to attack a variety of targets from outside enemy defenses. JSOW uses a common vehicle (truck) to deliver three different payloads. JSOW/A uses 145 BLU-97 Combined Effects Munitions for soft and area targets, JSOW/B uses 6 BLU-108 submunitions for attacking massed /mobile land-combat vehicles, and JSOW/C has a unitary BROACH warhead for harder/point targets (AF is not buying JSOW/C). The AF accepted its first JSOW in Nov 99. The F-16 (Block 50) is the threshold AF aircraft. JSOW will also be integrated on the B-1B, B-2, B-52, F-16C/D Blocks 40 and 30, F-15E, and JSF. The B-2 and F-16 are now JSOW capable. The B-52 and F-15E will be JSOW capable in FY02. JSOW/A is in Full Rate Production (FRP) and JSOW/B is in Low Rate Initial Production (LRIP). Both are purchased concurrently on the same JSOW contract. AF has over 100 JSOW in inventory. The current program is based on an USN buy of 13,000 (8,800 As, 1,200 Bs, 3,000 Cs) and an AF buy of 6,114 (3,000 As / 3,114 Bs). FY01 is the last year for JSOW AF RDT&E funds.

This program also includes the development of the JSOW Common Munitions Built-in Test Reprogramming Equipment (CMBRE) and software. The JSOW mission planning module and Precision Guided Munition Planning System (PGMPS) continues to be developed with the Air Force Mission Planning Support System (AFMSS) Aircraft/Weapons/Electronics (AWE) development. Through FY01, efforts include aircraft integration and JSOW/B BLU-108P3I testing.

JSOW AGM-154A&B are ACAT IC programs; AGM-154C (Navy only) is ACAT 1D.

(U) FY 2000 (\$ in Thousands)

(U) \$4,581 Completed design-to-cost initiatives; continue JSOW software improvements/upgrades; continue development/testing of AFMSS module for B-1B, F-15E, and F-16; AF-unique SAASM integration/mission planning.

(U) \$1,500 Completed F-16 OFP Smart Rack development.

(U) \$2,396 Completed engineering support, program office support, and other government support. Complete B-52 integration.

(U) \$1,144 Continued AGM-154B tests, including P3I Improved BLU-108 (IBLU) test, F-16 DT/OT, and production verification flight tests.

Project 1000 Page 1 of 6 Pages Exhibit R-2 (PE 0604727F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE																																																		
		June 2001																																																		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT																																																		
05 - Engineering and Manufacturing Development	0604727F Joint Standoff Weapons Systems	1000																																																		
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2000 (\$ in Thousands) Continued</u></p> <p>(U) \$9,621 Total</p> <p>NOTE: The following net transaction is not reflected in the FY00 program total: Recissions = -274K. This transaction is not reflected in other sections of the R-docs where an FY00 total is shown.</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u></p> <p>(U) \$1,000 Complete JSOW software improvements/upgrades; complete development/testing of AFMSS module for B-1B, F-15E, and F-16</p> <p>(U) \$485 Complete AGM-154B tests, including P3I Improved BLU-108 (IBLU) test, F-16 DT/OT and flight tests</p> <p>(U) \$1,485 Total</p> <p>NOTE: The following net transaction is not reflected in the FY01 program total: BTR=-18K and SBIR = -53K. This transaction is not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>The RDT&E program element is in Budget Activity 5, EMD, because it supports the development of Air Force JSOW and BRU-57 and associated software, flight testing, and other developmental efforts.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">10,150</td> <td style="text-align: right;">1,498</td> <td></td> <td style="text-align: right;">194,416</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">10,307</td> <td style="text-align: right;">1,498</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: right;">-513</td> <td style="text-align: right;">-10</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-69</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: right;">-104</td> <td style="text-align: right;">-3</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td></td> <td style="text-align: right;">-3</td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	10,150	1,498		194,416	(U) Appropriated Value	10,307	1,498			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-513	-10			b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram	-69				d. Below Threshold Reprogram					e. Rescissions	-104	-3			(U) Adjustments to Budget Years Since FY 2001 PBR				-3
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Project 1000		Exhibit R-2 (PE 0604727F)																																																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604727F Joint Standoff Weapons Systems			1000		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Major Contracts					4,581		1,000		0
(U)	Support Contracts					700		0		0
(U)	Program Office Support/Other Government Support					1,563		485		0
(U)	Test and Evaluation					2,644		0		0
(U)	BRU-57					133		0		0
(U)	Total					9,621		1,485		0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
	Raytheon Sys. Co.	SS/CPIF	Jun 95	134,330	134,330	128,729	4,581	1,000	0	134,310
	Lockheed	FP/CPIF	Feb 95	16,750	16,750	15,250	1,500	0	0	16,750
	EDO/M Tech	FP/CPIF	Oct 95	7,447	7,447	7,447	0	0	0	7,447
<u>Support and Management Organizations</u>										
	China Lake NWC	MIPR		N/A	N/A	5,225	700	0	0	5,925
	AAC/YH & Other			N/A	N/A	15,294	1,563	485	0	17,342
<u>Test and Evaluation Organizations</u>										
	AAC, Eglin AFB	REO		N/A	N/A	6,570	1,144	0	0	7,714
	BRU-57 Misc.	REO/Other		N/A	N/A	429	133	0	0	562
(U) Government Furnished Property:										
	<u>Contract</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
Project 1000										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604727F Joint Standoff Weapons Systems			PROJECT 1000		
(U) Government Furnished Property Continued:									
<u>Item</u>	<u>Contract</u> <u>Method/Type</u> <u>or Funding</u>	<u>Award or</u> <u>Obligation</u>	<u>Delivery</u> <u>Date</u>	<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
Textron	FPIF	Mar 96	Various	4,363	0	0		0	4,363
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
<u>Subtotals</u>				<u>Total Prior</u> <u>to FY 2000</u>	<u>Budget</u> <u>FY 2000</u>	<u>Budget</u> <u>FY 2001</u>	<u>Budget</u> <u>FY 2002</u>	<u>Budget to</u> <u>Complete</u>	<u>Total</u> <u>Program</u>
Subtotal Product Development				155,789	6,081	1,000		0	162,870
Subtotal Support and Management				20,519	2,263	485		0	23,267
Subtotal Test and Evaluation				6,999	1,277	0		0	8,276
Total Project				183,307	9,621	1,485		0	194,413

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604735F Combat Training Ranges					PROJECT 2286	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2286	Combat Training Range Equipment	11,484	16,407	25,943	19,000	21,277	21,387	20,260	20,843	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03 - FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 Air Combat Training Systems (ACTS) provide equipment for Air Force combat training ranges to support mission training and evaluation of aircrews, as well as the operational testing of weapons systems and tactics under simulated combat conditions. This program develops the electronic, telecommunications, and instrumentation equipment/systems for the training ranges. ACTS are interoperable with Navy combat training ranges, and provide the capabilities to train aircrews in air-to-air combat, air-to-ground combat, and electronic warfare, while providing real-time monitoring and control of aircraft during large force exercises and recording events for post-mission debrief and analysis. This program develops advanced threat emitters. The Mini-Multiple Threat Emitter System (MUTES) Modification Program (M3P) upgrades existing equipment to satisfy Air Force Electronic Warfare training requirements. The required M3P modifications will enable Mini-MUTES to incorporate the latest, most lethal advanced surface-to-air threats. The Advanced Threat Emitter System (ATES) will be developed to provide a comprehensive suite of threat signals to aircrews during simulated penetrations of hostile airspace for surveillance and bombing runs, for aircrew tactics and electronic combat training. ATES will complement existing threat simulators deployed on test and training ranges by emulating signals which simulate the most advanced air defense and threat radars. ATES has potential Joint applicability. This program element also funds aircraft/pod interfaces, software interoperability among service ranges and development and integration of the Range Security Initiative (RSI) (formerly known as Advanced Message Oriented Data Security Module - AMODSM) for range/aircraft data links-specifically the Nellis Air Combat Training System (NACTS) which supports Red Flag, Green Flag and USAF Fighter Weapons School training. The Navy led Joint Tactical Combat Training System (JTCTS) development contract was stopped in FY01. The JTCTS program is undergoing acquisition restructure in FY01 and FY02. The Air Force will participate in the restructure to include Air Force unique requirements in the program.

Target System Development PE 64258F was consolidated into this PE starting in FY02. Aerial Targets are used to determine air-to-air weapons systems accuracy and reliability by developing improved aerial target systems for Air Force weapons system test and evaluation. It develops full-scale and subscale aerial targets, and target control systems. Specialized target payload subsystems are developed for requirements such as: missile scoring, electronic and infrared (IR) countermeasures, radar, and IR signature augmentation, and chaff and flare dispensing.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604735F Combat Training Ranges	2286
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$2,297	Continued CTR basic operating support, and system acquisition and engineering support for range and threat systems	
(U) \$620	Continued interoperability improvements with existing Air Force and Navy ranges to include software, upgrades, and weapons simulation development	
(U) \$2,856	Developed and integrate Range Security Initiative (RSI) for the NACTS Range, and develop RSI design concept for the Tyndall Range Expansion (TRE).	
(U) \$4,647	Continued Mini-(MUTES) Multiple Threat Emitter System Modification Program (M3P)	
(U) \$964	Continued development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program office	
(U) \$100	Continued Range Instrumentation Technical Support (RITS) efforts. This is a name-change from the ACTS Software Sustainment Evaluation and Test (ASSET) effort.	
(U) \$11,484	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$3,720	Continued development of the RSI for NACTS/TRE	
(U) \$2,858	Continued CTR basic operating support, and system acquisition and engineering support for range and threat systems	
(U) \$492	Continued interoperability improvements with existing Air Force and Navy ranges to include software, upgrades, and weapons simulation development	
(U) \$2,543	Continued development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program office	
(U) \$6,649	Continued Mini-(MUTES) Multiple Threat Emitter System Modification Program (M3P)	
(U) \$145	Continued Range Instrumentation Technical Support efforts	
(U) \$16,407	Total	
The following net transactions are not reflected in the FY01 program total: BTR - \$78K, and SBIR -\$561K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$1,847	Continue development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program office	
(U) \$14,506	Begin Advanced Threat Emitter System development.	
(U) \$2,700	Continue interoperability improvements with existing Air Force and Navy ranges to include software, upgrades, and weapons simulation development	
(U) \$2,700	Continue JTCTS efforts for program restructure to include acquisition strategy development and initial testing	
Project 2286	Page 2 of 7 Pages	Exhibit R-2 (PE 0604735F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																							
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT 2286																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$192 Continue Aerial Target basic operating support and system acquisition and engineering support. (Moved from PE 64258F.)</p> <p>(U) \$145 Continue Range Instrumentation Technical Support efforts</p> <p>(U) \$3,853 Continue CTR basic operating support, and system acquisition and engineering support for range and threat systems</p> <p>(U) \$25,943 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 5 - Engineering and Manufacturing Development because the Combat Training Ranges (CTR) Program directly contributes to the effectiveness and survivability of US combat forces by developing range instrumentation and training systems to increase the effectiveness of the training spectrum from individual aircrew skill training to large-scale exercises.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">11,828</td> <td style="text-align: right;">12,559</td> <td style="text-align: right;">13,124</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">12,020</td> <td style="text-align: right;">16,559</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: right;">-112</td> <td style="text-align: right;">-116</td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td style="text-align: right;">-343</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td style="text-align: right;">-34</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: right;">-47</td> <td style="text-align: right;">-36</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">12,819</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">11,484</td> <td style="text-align: right;">16,407</td> <td style="text-align: right;">25,943</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>FY00 includes \$5.8M Congressional Plus-Up to fund M3P disconnects and to begin development for Range Security Initiative for NACTS.</p> <p>FY01 includes \$4.0M Congressional Plus-Up to continue development for Range Security Initiative for NACTS.</p> <p>FY02 includes Advanced Threat Emitter System (ATES) development new start effort</p>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	11,828	12,559	13,124	TBD	(U) Appropriated Value	12,020	16,559			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-112	-116			b. Small Business Innovative Research	-343				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-34				e. Rescissions	-47	-36			(U) Adjustments to Budget Years Since FY 2001 PBR			12,819		(U) Current Budget Submit/FY 2002 PBR	11,484	16,407	25,943	TBD
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																					
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Project 2286	Page 3 of 7 Pages	Exhibit R-2 (PE 0604735F)																																																							

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604735F Combat Training Ranges	PROJECT 2286
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(U) D. Other Program Funding Summary (\$ in Thousands)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) PE27429F: Appn: Other Procurement, AF (OPAF) Program Title: Combat Training Ranges	44,345	46,233	36,685	16,578	23,828	23,854	24,803	23,071	Continuing	TBD
(U) Initial Spares	2,055	3,772	785	786	803	820	837	856	Continuing	TBD
(U) Total OPAF	46,400	50,005	37,470	17,364	24,631	24,674	25,640	23,927	Continuing	TBD
(U) PE27429F: Appn: Aircraft Procurement, AF(APAF), Program Title: Combat Training Ranges	16,736	17,941	13,171	10,230	10,918	9,463	10,864	13,278	Continuing	TBD
(U) Initial Spares	265	1,244	1,379	1,406	1,441	1,477	1,509	1,542	Continuing	TBD
(U) Total APAF	17,001	19,185	14,550	11,636	12,359	10,940	12,374	14,820	Continuing	TBD
(U) PE35116F: Appn: Aircraft Procurement, AF (APAF), Program title: Aerial Targets	30,029	32,614	36,884	37,441	47,150	39,421	40,238	41,090	Continuing	TBD
(U) Initial Spares	885	605	101	833	1,009	505	505	506	Continuing	TBD
(U) Total APAF	30,914	33,219	36,985	38,274	48,159	39,926	40,743	41,596	Continuing	TBD

(U) E. Acquisition Strategy

The acquisition strategy is competitive, with cost plus contracts.

(U) F. Schedule Profile

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Nellis Air Combat Training System (NACTS)												
(U) NACTS Range Security Initiative (RSI) Contract Award									*			
(U) Mini-Mutes Multiple Threat Emitter (M3P) Development												
(U) Field Testing									X			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604735F Combat Training Ranges						PROJECT 2286		
(U) F. Schedule Profile Continued														
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				
	1	2	3	4	1	2	3	4	1	2	3	4		
(U) Production Decision										X				
(U) IOC											X			
(U) Advanced Threat Emitter System (ATES) Development														
(U) Development Contract Award											X			
(U) Joint Service Range Software Interoperability														
(U) Joint Service AMRAAM 5.1 Software Upgrade and Installation								X						
(U) Joint Service Tracking Instrumentation Subsystem Emulator (TISM)							*							
(U) Joint Tactical Combat Training System (JTCTS)														
(U) Tech Eval Report Complete	*													
(U) JTCTS Recovery Review Report							*							
(U) JTCTS Trade Studies & Acquisition Strategy Development									X					
(U) Contract Award												X		
(U) RITS Facility														
(U) ADDS 4.1E AF/Navy Integration				*										
(U) DDS Upgrade Air National Guard (ANG)		*												
(U) Annual Software Maintenance & Support							*			X				
(U) * = Completed event														
(U) X = Planned event														

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604735F Combat Training Ranges			2286		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Aircraft Interface Development				964		2,543			1,847
(U)	Mini-Mutes Modification Program (M3P)				4,647		6,649			0
(U)	Advanced Threat Emitter System (ATES) Development				0		0			14,506
(U)	Joint Service Interoperability Improvements				620		492			2,700
(U)	JTCTS Trade Studies and Acquisition Strategy Development				0		0			2,700
(U)	Range Instrumentation Technical Support (RITS)				100		145			145
(U)	Combat Training Ranges Program Office Support				2,297		2,858			3,853
(U)	Aerial Target Program Office Support				0					192
(U)	NACTS Range Security Initiative (RSI) Development				2,856		3,720			0
(U)	Total				11,484		16,407			25,943
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
Cubic Defense (NACTS)	C/CPAF/FFP	Mar 95			31,149	2,856	3,720	0	0	37,725
Raytheon (JTCTS)	Navy Contr	Mar 95			2,500	0	0	0	0	2,500
TBD (JTCTS)	Navy Contr	TBD			0	0	0	2,000	Continuing	TBD
Sverdrup (RITS)	CPAF	Oct 00			2,385	100	145	145	Continuing	TBD
Harris Corp (M3P)	CPFF	May 98			380	4,647	6,649	0	0	11,676
TBD (Advanced Threat Emitter System) (ATES)	TBD	TBD			0	0	0	14,506	Continuing	TBD
Joint Interoperability	Navy Contract	Mar 97			3,429	620	492	2,700	Continuing	TBD
Aircraft Interface	Through MOAs with	Jun 96			1,035	964	2,543	1,847	Continuing	TBD

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE		
							June 2001		
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development				0604735F Combat Training Ranges			2286		
(U) Performing Organizations Continued:									
<u>Product Development Organizations</u>									
ALCs &									
Aircraft SPO									
Contractors									
<u>Support and Management Organizations</u>									
OO/ALC/LH, Hill AFB, UT	Various			0	110	100	210	Continuing	TBD
AAC/WRR, Eglin AFB, FL	Various			8,576	2,027	2,758	3,643	Continuing	TBD
AAC/WRA, Eglin AFB, FL	Various			0	160	0	192	Continuing	TBD
NAWC, China Lake, CA	Various			113	0	0	0	Continuing	TBD
<u>Test and Evaluation Organizations</u>									
AAC/WRR, Eglin AFB, FL	Various			1,405	0	0	700	Continuing	TBD
46 Test Wing, Eglin AFB, FL	Various			640	0	0	0	Continuing	TBD
(U) Government Furnished Property:									
<u>Contract</u>									
<u>Method/Type</u>									
<u>Award or</u>									
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				40,878	9,187	13,549	21,198	TBD	TBD
Subtotal Support and Management				8,689	2,297	2,858	4,045	TBD	TBD
Subtotal Test and Evaluation				2,045	0	0	700	TBD	TBD
Total Project				51,612	11,484	16,407	25,943	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications					
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	5,871	7,941	224	243	261	280	285	291	Continuing	TBD
2523 Product Lines	169	213	224	243	261	280	285	291	Continuing	TBD
2524 Reuse and Component Support	5,702	7,728	0	0	0	0	0	0	0	13,455
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 The goal of this program is to dramatically reduce the development time, costs, and risks associated with the acquisition and development of warfighting command and control (C2) systems by using families of pre-defined product lines to enhance common application use and reuse. Project 2523 minimizes development cost and time by using pre-defined product line architectures, supporting Defense Information Infrastructure Common Operating Environment (DII COE) acceptance testing to insure compliance and interoperability, and tested, reusable software components from mature programs. The use of common product line designs during development can improve software quality and reliability while reducing fielding times and overall life cycle costs. Project 2524, Reuse and Component Support (RCS) identifies, tests, and provides reusable software components and products to the IC2A program. The RCS project developed a software reuse strategy for the DoD; and is developing a National Product Line Asset Center (NPLACE) Software Reuse Repository (a Congressional special interest item) to manage a command center product line based on primarily commercial off-the-shelf (COTS) products. The IC2A program has determined that over 80% of the functionality of any command center software is common to all command centers. For programs using product line concepts, average savings of 56% in development costs and 66% in development time can be realized.

(U) **B. Budget Activity Justification**
 This program is in budget activity 5 - Engineering and Manufacturing Development, due to the nature of the effort.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604740F Integrated Command & Control Applications

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	6,055	214	233	TBD
(U) Appropriated Value	6,096	8,014		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions				
b. Small Business Innovative Research	-183			
c. Omnibus or Other Above Threshold Reprogram	-8			
d. Below Threshold Reprogram	-10			
e. Rescissions	-24	-73		
(U) Adjustments to Budget Years Since FY 2001 PBR			-9	TBD
(U) Current Budget Submit/FY 2002 PBR	5,871	7,941	224	TBD

(U) **Significant Program Changes:**

Congress added \$5.9 million in FY00 for Asset Software Reuse Program (\$2.8 million), National Product Line Asset Center (NPLACE)(\$2.6 million), and Air Force Product Line Engineering (\$0.5 million).

Congress added \$7.8 million in FY01 for Reuse and Component Support.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications					PROJECT 2523		
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2523	Product Lines		169	213	224	243	261	280	285	291	Continuing	TBD
<p>FY03-FY07 budget numbers do not reflect the DoD strategic review results. BPAC 2523 does not reflect PA01-144, 27 Apr 01, in the amount of \$101,171 for FY 2001.</p> <p>(U) <u>A. Mission Description</u> The Product Lines Project forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined product line architectures with tested, reusable software components to build Command and Control (C2) systems. Using rapid prototyping techniques, a Product Line contractor can quickly tailor a product line to the warfighter's needs and deliver an integrated, combat-ready system. All product lines and components are based on Defense Information Infrastructure Common Operating Environment (DII COE) principles to ensure compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial Off-the Shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features. This effort minimizes development risks by reusing proven software components from mature programs and by continuously testing new products and technologies against the product line designs to ensure integration and interoperability. The Product Line contractors develop and maintain the product line infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Proven product line designs and tested software components reduce development costs, risks, and time for the user. New technologies, capabilities, and incremental developments are assessed and integrated into the designs as part of the product line development process to minimize any impact to the user.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$169 Qualify components for product lines. (U) \$169 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$213 Qualify components for product lines. (U) \$213 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$224 Quality components for product lines. (U) \$224 Total</p> <p>(U) <u>B. Project Change Summary</u></p>												
Project 2523			Page 3 of 10 Pages					Exhibit R-2A (PE 0604740F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications				PROJECT 2523			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) Not applicable											
(U) D. Acquisition Strategy											
All major contracts within this Program Element were awarded after full and open competition.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U)	Product Line Component Qualification (Ongoing)			*	*	*	*	X	X	X	X
	* - Completed Event										
	X - Planned Event										
	This is a support and management level of effort program. All activities are ongoing.										
Project 2523			Page 4 of 10 Pages				Exhibit R-2A (PE 0604740F)				

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications			PROJECT 2523		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						FY 2000		FY 2001		FY 2002
(U)	Product Line Component Qualification					169		213		224
(U)	Total					169		213		224
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Hughes	CPFF	19 Dec 92	N/A	N/A	453	0	0	0	0	453
Raytheon	CPFF	19 Dec 92	N/A	N/A	1,000	0	0	0	0	1,000
AGCS	CPFF	Dec 94	N/A	N/A	50	0	0	0	0	50
TRW	CPFF	12 Feb 97	N/A	N/A	0	0	0	0	0	0
Unisys	CPFF	29 Sep 93	N/A	N/A	30	0	0	0	0	30
Contractor Support	ITSP	Various	N/A	N/A	0	0	0	0	Continuing	TBD
<u>Support and Management Organizations</u>										
Program Office Support	Various	Various	N/A	N/A	874	169	213	224	0	1,480
<u>Test and Evaluation Organizations</u>										
Not applicable.										
(U) Government Furnished Property:										
<u>Item Description</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Property</u>										
Not applicable.										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE				
05 - Engineering and Manufacturing Development		June 2001				
BUDGET ACTIVITY		PE NUMBER AND TITLE				PROJECT
05 - Engineering and Manufacturing Development		0604740F Integrated Command & Control Applications				2523
(U) Government Furnished Property Continued:						
<u>Support and Management Property</u>						
<u>Test and Evaluation Property</u>						
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
						<u>Total</u>
<u>Subtotals</u>						
Subtotal Product Development		1,533	0	0	0	TBD
Subtotal Support and Management		874	169	213	224	0
Subtotal Test and Evaluation						
Total Project		2,407	169	213	224	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications					PROJECT 2524		
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2524	Reuse and Component Support		5,702	7,728	0	0	0	0	0	0	0	13,455
<p>FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> The Reuse and Component Support Project identifies, tests, and provides reusable software components and products for use by Air Force and Department of Defense program offices. Software reuse requires industry involvement for technology development and knowledge of direct and indirect impact to DoD missions in order to provide a skillful technical transition to fully state-of-the-art warfare utilization. Reuse and Component architecture structuring builds on the Air Force technical architecture and provides those pre-defined Product Line architectures with tested, reusable software components from mature programs. A software reuse strategy for DoD was developed as part of this effort. Efforts are continuing with development of a Product Line Asset Center Software Reuse Repository to manage a command center product line based primarily on commercial off-the-shelf (COTS) products through the National Product Line Asset Center (NPLACE) contract vehicle. NPLACE functions include the application of standards compliance testing to ensure greatest interoperability among C2 systems.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$2,722 Asset Software Reuse Program (ASSET) (U) \$2,530 National Product Line Asset Center (NPLACE) (U) \$450 Air Force Product Line Engineering (U) \$5,702 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$4,760 ASSET (U) \$1,973 NPLACE (U) \$995 AF Product Line Engineering (U) \$7,728 Total</p> <p>The following net transaction is not reflected in the FY01 program total: SBIR--277K. This transaction is not reflected in other sections of the R-DOCS where an FY01 total is shown.</p>												
Project 2524			Page 7 of 10 Pages					Exhibit R-2A (PE 0604740F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications				PROJECT 2524																																																																																					
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Project Change Summary</u></p> <p>Congress added \$5.9 million in FY00 for Asset Software Reuse Program (\$2.8 million), National Product Line Asset Center (NPLACE)(\$2.6 million), and Air Force Product Line Engineering (\$0.5 million).</p> <p>Congress added \$7.8 in FY01 for Reuse and Component Support.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Not applicable</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Not applicable.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th colspan="4" style="width:40%;"><u>FY 2000</u></th> <th colspan="4" style="width:40%;"><u>FY 2001</u></th> <th colspan="3" style="width:5%;"></th> <th colspan="3" style="width:40%;"><u>FY 2002</u></th> </tr> <tr> <td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td> <td></td><td></td><td></td> <td></td><td></td><td></td> <td></td><td></td><td></td> </tr> </thead> <tbody> <tr> <td>(U) Not applicable.</td> <td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> <td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> <td align="center">1</td><td align="center">2</td><td align="center">3</td> <td align="center">4</td><td align="center">2</td><td align="center">3</td> <td align="center">4</td><td></td><td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) Not applicable												<u>FY 2000</u>				<u>FY 2001</u>							<u>FY 2002</u>																					(U) Not applicable.	1	2	3	4	1	2	3	4	1	2	3	4	2	3	4								
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																																																				
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(U) Not applicable.	1	2	3	4	1	2	3	4	1	2	3	4	2	3	4																																																																														
Project 2524			Page 8 of 10 Pages				Exhibit R-2A (PE 0604740F)																																																																																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications			PROJECT 2524		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Enterprise-wide Asset Identification (ASSET)					2,722		4,760		
(U)	Product Line Suitability Testing (NPLACE)					2,530		1,973		
(U)	Product Line Engineering					450		995		
(U)	Total					5,702		7,728		
Congress added \$5.9 million in FY00 for Asset Software Reuse Program \$2.8 million), National Product Line Asset Center (NPLACE)(\$2.6 million), and Air Force Product Line Engineering (\$0.5 million).										
Congress added \$7.8 million in FY01 for Reuse and Component Support.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
West Virginia High Technology Center	FFP	18 Nov 96	N/A	N/A	0	2,288	1,730	0	0	4,018
Raytheon/Hughes/TRW	CPFF	20 Feb 97	N/A	N/A	0	0	0	0	0	0
SAIC	ITSP	Various	N/A	N/A		2,352	2,179			4,531
ProLogic	FFP	Various	N/A	N/A		439	855			1,294
Contractor Support	ITSP	Various	N/A	N/A	0	175	2,322	0	0	2,497
<u>Support and Management Organizations</u>										
Horizons Tech, Inc.						456	642			1,098
<u>Test and Evaluation Organizations</u>										
Not applicable.										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE					
BUDGET ACTIVITY				PROJECT					
05 - Engineering and Manufacturing Development				0604740F Integrated Command & Control Applications					
				2524					
(U) Government Furnished Property:									
<u>Item</u>	<u>Contract</u>	<u>Award or</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Method/Type</u>	<u>Obligation</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Vehicle</u>		<u>Date</u>	<u>Date</u>						
<u>Product Development Property</u>									
Not applicable.									
<u>Support and Management Property</u>									
<u>Test and Evaluation Property</u>									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Not applicable.									
Subtotal Product Development				0	5,254	7,086	0	0	12,340
Subtotal Support and Management					456	642			1,098
Subtotal Test and Evaluation									
Total Project				0	5,710	7,728	0	0	13,438

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604750F Intelligence Equipment					PROJECT 2053		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2053	National Air Intel Center	830	4,754	1,323	1,347	1,375	1,403	1,433	1,463	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> Intelligence Equipment (IE) provides continuing development and upgrades of threat analysis capabilities of the National Air Intelligence Center (NAIC) and Air Force Information Warfare Center (AFIWC). Both organizations are tasked with providing detailed foreign technology intelligence information to a variety of DOD and non-DOD customers. In the past few years, customers' requirements have been more sophisticated, dictating more detailed and timely intelligence not only in the technology regime but also in the economic, world crisis, and political arenas. IE provides NAIC and AFIWC with the tools necessary to produce timely intelligence of foreign weapon systems and develops the tools to model and assess foreign airborne and aerospace systems. This is the only AF program developing new, or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF developmental and operational functions. IE directs the engineering and development of specialized hardware and software to conduct Information Operations (IO) with systems which process, integrate, display, and distribute intelligence data/ information for HQ ACC, the Air Intelligence Agency (AIA) -- primarily their NAIC and AFIWC subordinates.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$316 Completed Comm Network Modeling Tool-Upgrade (TEL-SCOPE) (U) \$151 Continued Adv Infrared Countermeasures Systems Assessment Model (AIRSAM) Update (U) \$226 Continued Radio Frequency Weapons Modeling Improvements (HEIMDAL v 2.0+) (U) \$67 Initiated High Speed Propulsion Modeling (Phase 1: Pulsed-Detonation Engine Model) (U) \$70 Initiated Missile System (Phase 1: DIODE Objectives Model [DOM]) (U) \$830 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$283 Complete Advanced Infrared Countermeasures Systems Assessment Model (AIRSAM) Update (U) \$183 Complete Radio Frequency Weapons Modeling Improvements (HEIMDAL v 2.0+) (U) \$193 Continue High Speed Engine Propulsion Modeling (Phase 1: Pulsed-Detonation Engine Model) (U) \$313 Continue Missile System (Phase 1: DIODE Objectives Model [DOM]) (U) \$71 Initiate/Complete Missile System (Phase 2: MiTAS)</p>											
Project 2053				Page 1 of 7 Pages				Exhibit R-2 (PE 0604750F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604750F Intelligence Equipment	PROJECT 2053																																			
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(U) \$335 Initiate Standard Visualization Solution (SVS) - IVIEW 2000 Upgrade/JView</p> <p>(U) \$3,376 Initiate/Complete Radio Frequency Weapon Threat Assessment (RFA Program) (Congressional Plus-up)</p> <p>(U) \$4,754 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR=+0 K , ATR=+0 K, and SBIR=-40 K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$39 Complete High Speed Engine Propulsion Modeling Tools (Phase 1: Pulsed Detonation Engine Model)</p> <p>(U) \$239 Initiate High Speed Engine Propulsion Modeling Tools (Phase 2: Air Turbo-Ramjet Engine Model)</p> <p>(U) \$239 Initiate High Speed Engine Propulsion Modeling Tools (Phase 3: Turbo-Ramjet Engine Model)</p> <p>(U) \$229 Complete Missile System (Phase 1: DIODE Objectives Model [DOM])</p> <p>(U) \$115 Continue Standard Visualization Solution (SVS) - IVIEW 2000 Upgrade/JView</p> <p>(U) \$214 Initiate Missile System Upgrades (Phase 3: CRMPS [Computer Requirements Model for Payload Study])</p> <p>(U) \$214 Initiate Missile System Upgrades (Phase 4: BRACE [Ballistic Reentry Vehicle Accuracy Estimate])</p> <p>(U) \$34 Initiate Advanced Analysis Capabilities (AAC) - Integrated Avionics Support (IAS)</p> <p>(U) \$1,323 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This effort is Budget Activity 5, Engineering & Manufacturing Development, because the program develops and inserts new technology into existing systems and models to keep existing systems current.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">1,336</td> <td style="text-align: right;">1,298</td> <td style="text-align: right;">1,315</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">1,345</td> <td style="text-align: right;">4,798</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-41</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-368</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	1,336	1,298	1,315	TBD	(U) Appropriated Value	1,345	4,798			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research	-41				c. Omnibus or Other Above Threshold Reprogram	-368			
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																	
(U) Previous President's Budget (FY 2001 PBR)	1,336	1,298	1,315	TBD																																	
(U) Appropriated Value	1,345	4,798																																			
(U) Adjustments to Appropriated Value																																					
a. Congressional/General Reductions																																					
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Project 2053	Page 2 of 7 Pages	Exhibit R-2 (PE 0604750F)																																			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604750F Intelligence Equipment			2053				
(U) C. Program Change Summary (\$ in Thousands) Continued											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>				
	d. Below Threshold Reprogram			-101							
	e. Rescissions			-5	-44						
(U)	Adjustments to Budget Years Since FY 2001 PBR					8					
(U)	Current Budget Submit/FY 2002 PBR			830	4,754	1,323	TBD				
(U) Significant Program Changes:											
FY2000 database update will reflect an additional -\$6K BTR.											
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable										
(U) E. Acquisition Strategy											
All major contracts within this Program Element were awarded after full and open competition.											
(U) F. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U)	Completed Communication Network ModelingTool Upgrade (TEL-SCOPE)										
							*				
(U)	Complete Advanced IRCM Systems Assessment Model (AIRSAM) Update										
										X	
(U)	Complete Radio Frequency Weapons Modeling Improvements (HEIMDALL-2+)										
										X	
(U)	Begin High Speed Propulsion / Pulsed-Detonation Engine Model (Phase 1)										
				*							X
(U)	Begin High Speed Propulsion / Air-Turbo Ramjet Engine Model (Phase 2)										
										X	
Project 2053				Page 3 of 7 Pages				Exhibit R-2 (PE 0604750F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604750F Intelligence Equipment					PROJECT 2053		
(U) F. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Begin High Speed Propulsion / Turbo-Ramjet Engine Model (Phase 3)										X	
(U)	Begin Missile System / Phase 1: DIODE Objectives Model (DOM)										*	X
(U)	Begin/Complete Missile System / Phase 2: MiTAS										*	X
(U)	Begin IVIEW 2000 Upgrade/JView Standard Visualization Solution (SVS)										*	
(U)	Begin Advanced Analysis Capabilities (AAC) - Integrated Avionics Supt											X
(U)	Begin Radio Frequency Weapon Threat Assessment (RFA)										X	X
(U)	Begin Missile System /Phase 3: CRMPS											X
(U)	Begin Missile System/Phase 4: BRACE											X
Note: * denotes completed event, X denotes planned event.												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604750F Intelligence Equipment			PROJECT 2053		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Tel-Scope (Communication Network Modeling Tool)				316					
(U)	Adv IRCM Systems Assessment Model (AIRSAM) Update				151		283			
(U)	Radio Frequency Weapon Modeling Improvements (HEIMDALL 2+)				226		183			
(U)	High Speed Propulsion / P1: Pulsed Detonation Engine Model				67		193			39
(U)	High Speed Propulsion / P2: Air Turbo Rocket Engine Model									239
(U)	High Speed Propulsion / P3: Turbo-Ramjet Engine Model									239
(U)	Missile System / Phase 1: DIODE Objectives Model (DOM)				70		313			229
(U)	Missile System / Phase 2: MiTAS						71			
(U)	Missile System / Phase 3: CRMPS									214
(U)	Missile System/ Phase 4: BRACE									214
(U)	IVIEW 2000 Upgrade / JView - Standard Visualization Solution						335			115
(U)	Terrorist RF Weapon Threat Assessment						3,376			
(U)	Adv Analysis Capability: Integrated Avionics Support Model									34
(U)	Total				830		4,754			1,323
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Planning Research Corp(PRC)/Litton 95-C-0048 (Tel-Scope)	CPFF	31 Jul 98	N/A	N/A	221	316			Continuing	TBD
Sterling Software, Inc 98-D-0318/06 (AIRSAM)	CPFF	Sep 99	N/A	N/A	130	151	283		Continuing	TBD
Applied Sciences Laboratory	CPFF	17 Jul 97	N/A	N/A		226	183			409

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604750F Intelligence Equipment			PROJECT 2053	
(U) <u>Performing Organizations Continued:</u>								
<u>Product Development Organizations</u>								
97-C-0036/01(RF Weapons)								
Applied Sciences Laboratory	CPFF	26 May 99	N/A	N/A		3,376		3,376
97-C-0036/02 (RF Weapons)								
Calspan Veridian Corporation	CPFF	31 Jul 98	N/A	N/A	70	313	229	612
99-DC-0050 (DOM)								
Sterling Software, Inc	CPFF	12 Feb 99	N/A	N/A	67	193	39	299
98-D-0318/02 (HSP-P-DE)								
TBD - Phase 2: High Speed	TBD	TBD	N/A	N/A			239	239
Propulsion (ATR)								
TBD - Phase 3: High Speed	TBD	TBD	N/A	N/A			239	239
Propulsion (T-R)								
TBD - Missile System / Phase	CPFF		N/A	N/A		71		71
2: MiTAS								
TBD - Missile System / Phase	TBD	TBD	N/A	N/A			214	214
3: CRMPS								
TBD - Missile System/ Phase	TBD	TBD	N/A	N/A			214	214
4: BRACE								
TBD - IVIEW 2000	CPFF	TBD	N/A	N/A		335	115	450
Upgrade/JView SVS								
TBD - Adv Analysis			N/A	N/A			34	34
Capability: Integrated								
Avionics Support Model								
TBD - Laser Weapons							800	800
Simulation & Analysis								
(LODUR)								
<u>Support and Management Organizations</u>								
N/A								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE		
BUDGET ACTIVITY							June 2001		
05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE			PROJECT		
				0604750F Intelligence Equipment			2053		
(U) Performing Organizations Continued:									
<u>Test and Evaluation Organizations</u>									
N/A									
(U) Government Furnished Property:									
<u>Contract Method/Type</u>									
<u>Award or</u>									
<u>Delivery</u>									
<u>Total Prior</u>									
<u>Budget</u>									
<u>Budget</u>									
<u>Budget</u>									
<u>Budget to</u>									
<u>Total</u>									
<u>Item</u>		<u>or Funding</u>		<u>Obligation</u>		<u>Vehicle</u>		<u>Date</u>	
<u>Description</u>		<u>Vehicle</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>	
<u>Product Development Property</u>									
N/A									
<u>Support and Management Property</u>									
N/A									
<u>Test and Evaluation Property</u>									
N/A									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
					<u>Program</u>				
<u>Subtotals</u>									
Subtotal Product Development					351	830	4,754	1,323	TBD
Subtotal Support and Management									
Subtotal Test and Evaluation									
Total Project					351	830	4,754	1,323	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604754F Tactical Data Link Integration						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	11,687	8,665	17,648	23,967	24,139	24,342	24,608	24,831	Continuing	TBD
4749 Link 16 System Integration	11,075	8,065	8,595	8,866	9,023	9,211	9,462	9,668	Continuing	TBD
4992 Family of Interoperable Operational Pictures (FIOP)	0	0	9,053	15,101	15,116	15,131	15,146	15,163	Continuing	TBD
P771 JTIDS	612	600	0	0	0	0	0	0	0	0
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 Joint Tactical Information Distribution System (JTIDS) is a secure, jam-resistant, high-capacity data link for use in a tactical combat environment. The follow on system is the Multifunction Information Distribution System (MIDS) for which the Navy is the Executive Service. Both JTIDS and MIDS broadcast Link 16 (a.k.a., Tactical Digital Information Link J (TADIL J)) messages, free text, imagery and voice. [Note: Link 16 is the new tactical data link which provides technical and operational improvements to existing tactical data link capabilities.] They provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. Both terminals are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons platforms, and sensors.

The number of Air Force platforms hosting Link-16 (either JTIDS or MIDS) is expanding, from C2 aircraft (E-3, E-8, etc.) into the fighter, bomber, sensor, tanker, and other tactical fleets (F-15, F-16, F-22, RJ, ABCCC, B-1, B-2, B-52, etc.). Utilization of Link-16 in a joint environment requires the integration of terminals into these host platforms, and interoperability of Link-16 nets across all deployed joint and allied platforms. Cross-platform activities performed by the Link 16 System Integration Office (SIO) include: integration efforts encompassing hardware, software, operational, and logistics development, certification of individual Link-16 implementations to joint and allied standards, establishment of Service-wide net management procedures and operations, system wide enhancements and improvements, and test and sustainment activities. In addition, the SIO is supporting the integration of Link 16 into the Icelandic Air Defense System (IADS) and has management responsibility for the Air Force's Air Defense System Integration systems (ADSI).

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY
05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE
0604754F Tactical Data Link Integration

(U) **A. Mission Description Continued**

The JTIDS project office provides the user with JTIDS 2/2H terminals, as well as all of the acquisition support, technical assistance and integration necessary to operationally field, retrofit, and assist all of the platforms.

(U) **B. Budget Activity Justification**

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration solutions, fielding, operational support activities, and support of special projects.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	8,542	8,745	8,859	
(U) Appropriated Value	8,542	8,745		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions		-61		
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram	3,179			
d. Below Threshold Reprogram				
e. Rescissions	-34	-19		
(U) Adjustments to Budget Years Since FY 2001 PBR			8,789	
(U) Current Budget Submit/FY 2002 PBR	11,687	8,665	17,648	TBD

(U) **Significant Program Changes:**

FY02 \$9M Congressional plus-up for Family of Interoperable Operational Picture (FIOP), less general reductions

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604754F Tactical Data Link Integration					PROJECT 4749	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4749	Link 16 System Integration	11,075	8,065	8,595	8,866	9,023	9,211	9,462	9,668	Continuing	TBD
<p>Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> Tactical Data Links (TDL) are used in a combat environment to exchange information such as messages, data, radar tracks, target information, platform status, imagery, and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. TDLs are used by the Air Force, Army, Navy, and Marine Corps theater Command and Control (C2) elements, weapons platforms, and sensors. TDLs include but are not limited to: Link-16, Link-11, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Enhanced Position Location Reporting System (EPLRS), and Common Data link (CDL).</p> <p>The number of Air Force platforms hosting Link-16 is expanding, from C2 aircraft (E-3, E-8, etc.) into the fighter, bomber, sensor, tanker, airlift and other tactical fleets (F-15, F-16, F-22, RJ, ABCCC, B-1, B-2, B-52, etc.). Utilization of TDLs in a joint environment requires the integration of terminals into these host platforms and interoperability of TDL networks across all deployed joint and allied platforms. Cross-platform activities performed by the Tactical Data Links System Program Office (SPO) (formerly the Link-16 SPO) includes: integration efforts encompassing hardware, software, operational, and logistics development, certification of individual TDL implementations to joint and allied standards, establishment of Service-wide net management procedures and operations, system wide enhancements and improvements, and test and sustainment activities. In addition, the SPO is supporting the integration of TDL (specifically Link-16) into the Icelandic Air Defense System (IADS) and has management responsibility for the Air Force's Air Defense System Integrator (ADSI)</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$4,816 CONTINUE LINK-16 INTEGRATION: Efforts associated with hardware and software integration of Link 16 terminals into Air Force platforms. -- (U) On-going Engineering Integration Support to Platforms; Technical Improvements; Field Support; Technical Assistance to related tactical data link demonstration programs. (U) \$2,019 CONTINUE LINK-16 EMD SUPPORT: Efforts associated with fielding terminals. -- (U) Support Operations Support Working Group; Maintain Developmental Equipment; Test Support; Fielding/Non-Recurring Training; Network Support; Crypto Support; Spectrum Support; Gateway Support; Data Link Tool Support. (U) \$100 CONTINUED TACTICAL DATA LINK CONNECTIVITY: -- (U) Link 16/Gateway/Interfaces</p>											
Project 4749		Page 3 of 16 Pages					Exhibit R-2A (PE 0604754F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604754F Tactical Data Link Integration	4749
(U) A. Mission Description Continued		
(U) FY 2000 (\$ in Thousands) Continued		
	-- (U) ADSI Management.	
(U) \$150	CONTINUED SYSTEM TESTING & SUPPORT: Cross-platform Test and Evaluation and system-level testing.	
(U) \$3,990	JEFX/LINK-16 INTEGRATION: Funding provided in this PEC to support of EFX program.	
(U) \$11,075	Total	
(U) FY 2001 (\$ in Thousands)		
(U) \$5,763	CONTINUE LINK-16 INTEGRATION: Efforts associated with hardware and software integration of Link 16 terminals into Air Force platforms.	
	-- (U) On-going Engineering Integration Support to Platforms; Technical Improvements; Field Support; Technical Assistance to related tactical data link demonstration programs.	
(U) \$2,052	CONTINUE LINK-16 EMD SUPPORT: Efforts associated with fielding terminals.	
	-- (U) Support Operations Support Working Group; Maintain Developmental Equipment; Test Support; Fielding/Non-Recurring Training; Network Support; Crypto Support; Spectrum Support; Single Integrated Air Picture System Engineering Task Force Support, Korea Tactical Data Link Upgrade Support	
(U) \$100	CONTINUED TACTICAL DATA LINK CONNECTIVITY:	
	-- (U) Link 16/other TDLS/Gateway/Interfaces. (Gateways are considered a new start in FY01 due to the increased scope of the efforts)	
	-- (U) ADSI Management.	
(U) \$150	CONTINUED SYSTEM TESTING & SUPPORT: Cross-platform Test and Evaluation and system-level testing.	
(U) \$8,065	Total	
Note: The following net transactions are not reflected in the FY01 program total: SBIR = -268K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.		
(U) FY 2002 (\$ in Thousands)		
(U) \$5,838	CONTINUE LINK-16 INTEGRATION: Efforts associated with hardware and software integration of Link 16 terminals into Air Force platforms.	
	-- (U) On-going Engineering Integration Support to Platforms; Technical Improvements; Field Support; Technical Assistance to related tactical data link demonstration programs.	
(U) \$2,239	CONTINUE LINK-16 EMD SUPPORT: Efforts associated with fielding terminals.	
	-- (U) Support Operations Support Working Group; Maintain Developmental Equipment; Test Support; Fielding/Non-Recurring Training;	
Project 4749	Page 4 of 16 Pages	Exhibit R-2A (PE 0604754F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																																																						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604754F Tactical Data Link Integration				PROJECT 4749																																																																																																																																					
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u> Network Support: Crypto Support; Spectrum Support; Gateway Support; Data link Tool Support.</p> <p>(U) \$279 CONTINUED TACTICAL DATA LINK CONNECTIVITY: -- (U) Link 16/other TDLs/Gateways/Interfaces. -- (U) ADSI Management.</p> <p>(U) \$239 CONTINUED SYSTEM TESTING & SUPPORT: Cross-platform Test and Evaluation and system-level testing.</p> <p>(U) \$8,595 Total</p> <p>(U) <u>B. Project Change Summary</u> None</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th><u>FY 2000</u></th> <th><u>FY 2001</u></th> <th><u>FY 2002</u></th> <th><u>FY 2003</u></th> <th><u>FY 2004</u></th> <th><u>FY 2005</u></th> <th><u>FY 2006</u></th> <th><u>FY 2007</u></th> <th><u>Cost to</u></th> <th><u>Total Cost</u></th> </tr> <tr> <th></th> <th><u>Actual</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Estimate</u></th> <th><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> </tr> <tr> <td>(U) Other APPN OPAF, RDT&E,N, O&M</td> <td align="right">3,662</td> <td align="right">3,790</td> <td align="right">7,895</td> <td align="right">6,291</td> <td align="right">8,185</td> <td align="right">8,111</td> <td align="right">8,389</td> <td align="right">8,560</td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> The Air Force Tactical Data Link System Program Office (SPO) provides for common development of integration and interoperability across all Air Force platforms and ensures that Link 16 is procured and maintained as a joint, end-to-end, command and control system. Host platforms program and budget for JTIDS or MIDS (Fighter Data Link (FDL) and Low Volume Terminal (LVT) derivatives) production terminals and for installation into operational units.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="3"><u>FY 2000</u></th> <th colspan="3"><u>FY 2001</u></th> <th colspan="3"><u>FY 2002</u></th> </tr> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>(U) Contract Milestones</td> <td></td> </tr> <tr> <td>(U) - FDL Full Rate Production Award</td> <td></td> <td></td> <td></td> <td align="center">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) - MIDS LVT - F-16 Production Award</td> <td></td> <td></td> <td></td> <td></td> <td align="center">*</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Host Platform Integration Start</td> <td></td> </tr> <tr> <td>(U) - F-15E (thru FY01)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td align="center">X</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN OPAF, RDT&E,N, O&M	3,662	3,790	7,895	6,291	8,185	8,111	8,389	8,560				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Contract Milestones													(U) - FDL Full Rate Production Award				*									(U) - MIDS LVT - F-16 Production Award					*								(U) Host Platform Integration Start													(U) - F-15E (thru FY01)									X									
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																																																			
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Project 4749				Page 5 of 16 Pages				Exhibit R-2A (PE 0604754F)																																																																																																																																					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604754F Tactical Data Link Integration					PROJECT 4749		
(U) E. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	- F-15C/D Installation/Training (thru FY01)											X
(U)	- F-16 (thru FY04)											
(U)	- Compass Call (thru FY02)											X
(U)	- Airborne Laser (ABL) (thru 1st Qtr FY03)											
(U)	- B-2 EMD											X
(U)	Command and Control Platforms											
(U)	- AWACS Link 16 Qual Complete											*
(U)	Complete Baseline Integration											
(U)	- MCE (P3I)											
(U)	-- Installation Start											
(U)	-- Installation Complete											*
(U)	-IADS installation start											X
	* Denotes completed events											
	X Denotes planned events											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604754F Tactical Data Link Integration			PROJECT 4749		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Link-16 Integration				4,816		5,763			5,838
(U)	EMD Activities				2,019		2,052			2,239
(U)	Tactical Data Link Connectivity				100		100			279
(U)	System Testing & Support				150		150			239
(U)	JEFX Funding				3,990		0			0
(U)	Total				11,075		8,065			8,595
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
Data Link Solutions	MIPR	TBD			114	600	624	649	Continuing	TBD
<u>Support and Management Organizations</u>										
ESC	Various	Various			521	315	325	419	Continuing	TBD
CONTRACTOR SUPPORT	FPLOE	Various			1,076	3,205	2,913	3,118	Continuing	TBD
MITRE	FPLOE	Various			4,165	6,805	4,053	4,099	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
EGLIN AFB	PO/616	Various			852	150	150	310	Continuing	TBD
					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>										
Subtotal Product Development					114	600	624	649	TBD	TBD
Subtotal Support and Management					5,762	10,325	7,291	7,636	TBD	TBD
Subtotal Test and Evaluation					852	150	150	310	TBD	TBD
Total Project					6,728	11,075	8,065	8,595	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604754F Tactical Data Link Integration					PROJECT 4992	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4992	Family of Interoperable Operational Pictures (FIOP)	0	0	9,053	15,101	15,116	15,131	15,146	15,163	Continuing	TBD
<p>Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u> This funding will be used to continue development of the Family of Interoperable Operational Pictures (FIOP) architecture and be appropriately apportioned for the purpose of identifying and eliminating interoperability gaps and unnecessary duplications derived from the FIOP implementation strategy. When complete, the FIOP effort will allow all Services and Agency systems to exchange data to improve the coherence and consistency across systems that support Joint and Coalition operations.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$1,250 SUPPORT FIOP EFFORTS: Provide management and technical oversight to all phases of FIOP --(U) On-going support for all FIOP related activities, CONOP development, requirements review, implementation review, working group support, web site maintenance.</p> <p>(U) \$1,700 FIOP JOINT OPERATIONAL CONCEPT DEVELOPMENT: Efforts associated with determining Joint Operational concepts. -- (U) Generate joint operational requirements (joint architecture) including information needs to accomplish specific execution task (CAS, TCT, Ground Maneuver, humanitarian relief, etc.)</p> <p>(U) \$1,850 FIOP REQUIREMENTS DOCUMENTATION, REVIEW, ASSESSMENT AND TRAINING: Provide required documentation and training to support documentation review activities. --(U) Requirements group to perform cross-service/cross system documentation review and assessment efforts to identify gaps and/or duplication in efforts; identification of new requirements</p> <p>(U) \$4,253 FIOP IMPLEMENTATION STRATEGY EFFORTS: Efforts provide forward thinking for strategic development and resolution of interoperable operation issues.</p>											
Project 4992			Page 8 of 16 Pages				Exhibit R-2A (PE 0604754F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
05 - Engineering and Manufacturing Development				0604754F Tactical Data Link Integration				4992		
(U) A. Mission Description Continued										
(U) FY 2002 (\$ in Thousands) Continued										
-- (U) On-going engineering support to develop a methodology through which validated gaps in capabilities can be resolved. This methodology facilitates the development of courses of action and initiation of synchronization plans to provide DOTMLPF solution for legacy systems. To facilitate traceability of operational requirements and ensure that future systems are 'born joint', adjustment/modification to requirements documents (i.e. CRDs, ORDs, MNSs); and, as necessary, POM inputs, will be provided.										
(U) \$9,053 Total										
(U) B. Project Change Summary										
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) Other APPN										
(U) D. Acquisition Strategy										
Using products produced by FIOP, provides courses of action/alternatives that will support an all-source picture of the battlespace containing actionable, decision-quality, information to the warfighter through a fusion of existing databases.										
(U) E. Schedule Profile										
		<u>FY 2000</u>				<u>FY 2001</u>			<u>FY 2002</u>	
		1	2	3	4	1	2	3	4	1
(U) FIOP PROGRAM MANAGEMENT										
(U) JOINT OPERATIONAL CONCEPT DEVELOPMENT										
(U) CONTINUED FIOP REQUIREMENTS DOCUMENTATION, REVIEW, ASSESSMENT AND TNG										
(U) CONTINUED FIOP IMPLEMENTATION STRATEGY EFFORTS										
Project 4992				Page 9 of 16 Pages				Exhibit R-2A (PE 0604754F)		

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604754F Tactical Data Link Integration			4992		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	FIOP PROGRAM MANAGEMENT									1,250
(U)	JOINT OPERATIONAL CONCEPT DEVELOPMENT									1,700
(U)	CONTINUED FIOP REQUIREMENTS DOCUMENTATION, REVIEW, ASSESSMENT AND TRAINING									1,850
(U)	CONTINUED FIOP IMPLEMENTATION STRATEGY EFFORTS									4,253
(U)	Total									9,053
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
<u>Support and Management Organizations</u>										
ESC	Various	Various						905	Continuing	TBD
CONTRACTOR SUPPORT	FPLOE	Various						1,810	Continuing	TBD
MITRE	FPLOE	Various						6,338	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>										
Subtotal Product Development										
Subtotal Support and Management								9,053	TBD	TBD
Subtotal Test and Evaluation										
Total Project								9,053	TBD	TBD

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604754F Tactical Data Link Integration	PROJECT P771
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
P771 JTIDS	612	600	0	0	0	0	0	0	0	465,113

Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**

Joint Tactical Information Distribution System (JTIDS) is a secure, jam-resistant, high-capacity data link for use in a tactical combat environment. The follow on system is the Multifunction Information Distribution System (MIDS) run by the Navy. Both JTIDS and MIDS broadcast Link 16 (a.k.a., Tactical Digital Information Link J (TADIL J)) messages, free text, imagery and voice. They provide interoperability, local and global connectivity, and situational awareness to the user when operating under rapidly changing operational conditions. Both are used by the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons platforms, and sensors.

The JTIDS Program Office provides the user with JTIDS 2/2H terminals, as well as all of the acquisition support, technical assistance and integration necessary to operationally field, retrofit, and assist all of the platforms.

(U) **FY 2000 (\$ in Thousands)**

- (U) \$449 CONTINUE ACQUISITION SUPPORT
 - (U) Write, execute and administer contracts for multiple platforms
 - (U) Command and Control Terminal Acquisition Support
 - (U) Ongoing technical and programmatic support for JTIDS users
- (U) \$115 CONTINUE TECHNICAL SUPPORT
 - (U) Technical Improvements
 - Technical support to AF platforms for the purpose of integrating and executing product improvements
 - Technology Updates (e.g., advanced hardware and software)
- (U) \$48 CONTINUE DIMINISHING MANUFACTURING RESOURCES
 - (U) Identify problem electrical parts, assess impacts, develop, and implement resolution plans
- (U) \$612 Total

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604754F Tactical Data Link Integration			PROJECT P771				
(U) A. Mission Description Continued											
(U) FY 2001 (\$ in Thousands)											
(U)	\$392	CONTINUE ACQUISITION SUPPORT									
		-- (U) Write, execute and administer contracts for multiple platforms									
		-- (U) Command and Control Terminal Acquisition Support									
		-- (U) Ongoing technical and programmatic support for JTIDS users									
(U)	\$162	CONTINUE TECHNICAL SUPPORT									
		-- (U) Technical Improvements									
		-- Technical support to AF platforms for the purpose of integrating and executing product improvements									
		-- Technology Updates (e.g., advanced hardware and software)									
(U)	\$46	CONTINUE DIMINISHING MANUFACTURING RESOURCES									
		-- (U) Identify problem electrical parts, assess impacts, develop, and implement resolution plans									
(U)	\$600	Total									
(U) FY 2002 (\$ in Thousands)											
(U)	\$0	No Activity									
(U)	\$0	Total									
(U) B. Project Change Summary											
(U) C. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E										
(U)	Other APPN										
(U)	Other Proc AF, PE	0	0	0	0	0	0	0	0	0	0
	0204738F, Theater Battle										
	Management Core System										
	(TBMCS)										
(U)	Other Proc AF, 0305208F,	0	0	0	0	0	0	0	0	0	0
	Intel Ops Ground Syst.										
Project P771		Page 12 of 16 Pages					Exhibit R-2A (PE 0604754F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT			
05 - Engineering and Manufacturing Development				0604754F Tactical Data Link Integration				P771			
(U) C. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Other Proc AF, 46 OSS, Eglin AFB	351	5	0	0	0	0	0	0	0	356
(U)	Other Proc AF, PE 0207581F Joint Surveillance Target Attack Radar System (JSTARS)	7	0	0	0	0	0	0	0	0	7
(U)	Other Proc AF, Warner Robins Air Logistics Center	0	0	0	0	0	0	0	0	0	0
(U)	Other Proc AF, PE 06072300 Ground Theater Air Control System (GTACS)	1,330	0	0	0	0	0	0	0	0	1,330
(U)	Other Proc AF, PE 0604226F, B-1	2,400	60	0	0	0	0	0	0	0	2,460
	* Other Program Funding reflects procurement of JTIDS hardware only. There are other USAF programs (F-15, F-16) that are budgeted to procure MIDS terminals in the FY00-FY06 timeframe.										
(U) D. Acquisition Strategy											
The JTIDS program office continues to manage the acquisition for the JTIDS Class 2/2H terminals for the Air Force, Navy, and Marine Corps. The Program Office has extended the ordering period for procurement of terminals in order to meet platform requirements. Funding for JTIDS terminal procurement will continue to wind down as the next generation Multifunctional Information Distribution System (MIDS) terminal becomes available. The period of performance to procure terminals is 30 September 2001, at that point terminal procurements are complete.											
(U) E. Schedule Profile											
					<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604754F Tactical Data Link Integration					PROJECT P771			
(U) E. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) New Software Releases (Yearly event)		*				X							
(U) - FRP-2 Contract Extension		*						X					
(U) Terminal Orders													
(U) - Joint STARS						X							
(U) - GTACS			*										
(U) - B-1				*									
(U) -Eglin AFB, 46 OSS				*									
(U) Terminal Deliveries													
(U) - TBMCS				*	X								
(U) - Intel Ops Ground System				*									
(U) - Joint STARS												X	
(U) - Warner Robins ALC			*										
(U) - GTACS									X				
(U) - B-1											X		
(U) -Eglin AFB, 46 OSS											X		
X denotes planned event													
* denotes completed event													

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604754F Tactical Data Link Integration			PROJECT P771			
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Acquisition Support					449		392		
(U)	Technical Support					115		162		
(U)	Diminishing Manufacturing Resources					48		46		
(U)	Total					612		600		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
GEC-MARCONI	FFP	DEC 85	230,727	230,727	230,727				0	230,727
LOCKHEED	FFP	JUN 93	6,761	6,761	6,761				0	6,761
GEC-MARCONI	FFP	JUN 93	1,123	1,123	850	90	0		0	940
CACD	FFP	JUN 93	1,616	1,616	1,072	256	401		0	1,729
MCAIR	CPFF	MAR 94	2,434	2,434	2,434				0	2,434
RADC	PO/616	Various	3,067	3,067	3,067				0	3,067
WR-ALC	PO/616	Various	2,966	2,966	2,966				0	2,966
NADEP	MIPR	Various	1,030	1,030	1,030				0	1,030
ACSI	FFP	SEP 94	492	492	492				0	492
VIASAT, INC.	FFP	Various	815	815	815				0	815
AF Platforms	PO/616	Various	169	169	169				0	169
NORTHROP GR	FFP	AUG 97	500	500	500				0	500
ROCKWELL	FFP	Various	2,080	2,080	2,080				0	2,080
HUGHES	FFP	Various	133	133	133				0	133
DRC	FFP	MAY 97	213	213	213				0	213
MIDSCO, Inc	MIPR	Various	4,251	4,251	4,251				0	4,251

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE			
BUDGET ACTIVITY							June 2001			
05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE			PROJECT			
				0604754F Tactical Data Link Integration			P771			
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
MOTOROLA INC	FFP	Various	1,800	1,800	1,800			0	1,800	
ALLIED SIGNAL	CPFF	Various	75	75	75			0	75	
MCDONNELL DG	FFP	Various	2,582	2,582	2,582			0	2,582	
BOEING	FFP	Various	869	869	869			0	869	
<u>Support and Management Organizations</u>										
ESC	Various	Various	21,875	21,875	21,973	127	149	0	22,249	
CONTRACTOR SUPPORT	Various	Various	42,863	42,863	42,749	78	50	0	42,877	
MITRE	FPLOE	Various	134,023	134,023	134,023	61	0	0	134,084	
<u>Test and Evaluation Organizations</u>										
MT HOME AFB	PO/616	Various	416	416	416			0	416	
EGLIN AFB	PO/616	Various	1,969	1,969	1,854	0	0	0	1,854	
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					262,886	346	401		0	263,633
Subtotal Support and Management					198,745	266	199		0	199,210
Subtotal Test and Evaluation					2,270	0	0		0	2,270
Total Project					463,901	612	600		0	465,113

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys					PROJECT 4683	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4683 Common Low Observable Verification System	9,704	11,515	6,713	0	0	0	0	0	0	32,586
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 Common Low Observable Verification System (CLOVerS) is intended as an easily deployable flightline system to evaluate surface anomalies on low observable (stealth) aircraft. It will allow maintenance personnel to determine if a repair is needed, or if the repair performed was successful in restoring the low observable characteristic of the aircraft. CLOVerS is intended for use with the B-2, F-117, F-22, as well as future aircraft such as the Joint Strike Fighter. Key capabilities required include the ability to detect, locate, and resolve small surface defects, reduced measurement time (compared to existing verification methods), operation under less restrictive security measures, and a small deployment footprint.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$9,578 Continue Development Contract
 (U) \$126 Program Office Support
 (U) \$9,704 Total
 The following net transactions are not reflected in the FY00 program total: BTR=-26K.

(U) **FY 2001 (\$ in Thousands)**
 (U) \$11,208 Continue Development Contract
 (U) \$96 Continue Development Contract Award Fee
 (U) \$211 Program Office Support
 (U) \$11,515 Total
 The following net transactions are not reflected in the FY01 program total: BTR=-2072K and SBIR=-420K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																															
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys	PROJECT 4683																																																															
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">(U) \$6,468</td> <td>Complete Development Contract</td> </tr> <tr> <td>(U) \$48</td> <td>Complete Development Contract Award Fee</td> </tr> <tr> <td>(U) \$197</td> <td>Program Office Support</td> </tr> <tr> <td>(U) \$6,713</td> <td>Total</td> </tr> </table> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in budget activity 5 - Engineering and Manufacturing Development, Research Category 6.4 because this program develops the Common Low Observable Verification System (CLOVerS).</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="width: 60%;"></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">5,818</td> <td style="text-align: center;">11,621</td> <td style="text-align: center;">2,078</td> <td style="text-align: center;">24,041</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">5,893</td> <td style="text-align: center;">11,621</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">-36</td> <td style="text-align: center;">-81</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-168</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">4,038</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">-23</td> <td style="text-align: center;">-25</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: center;">4,635</td> <td style="text-align: center;">8,545</td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: center;">9,704</td> <td style="text-align: center;">11,515</td> <td style="text-align: center;">6,713</td> <td style="text-align: center;">32,586</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> FY00 \$4.1M was transferred to PE64762F from other Air Force programs. \$4.6M reprogrammed from FY02 production funds (PE27145F) to complete developmental efforts.</p>			(U) \$6,468	Complete Development Contract	(U) \$48	Complete Development Contract Award Fee	(U) \$197	Program Office Support	(U) \$6,713	Total		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	5,818	11,621	2,078	24,041	(U) Appropriated Value	5,893	11,621			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-36	-81			b. Small Business Innovative Research	-168				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	4,038				e. Rescissions	-23	-25			(U) Adjustments to Budget Years Since FY 2001 PBR			4,635	8,545	(U) Current Budget Submit/FY 2002 PBR	9,704	11,515	6,713	32,586
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Project 4683	Page 2 of 5 Pages	Exhibit R-2 (PE 0604762F)																																																															

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys				PROJECT 4683			
(U) D. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) PE27145F:Appn: Aircraft Procurement, AF (APAF) Budget Activity: Aircraft (A/C) Procurement/Common Support Equipment, Program Title: Common Low Observable Test Equipment	0	0	11	4,783	705	0	0	0	0	5,499	
(U) E. Acquisition Strategy The contract was awarded using full and open competition. Engineering and Manufacturing Development (EMD) contract type is Cost Plus Award Fee.											
(U) F. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U) Test Van Final Review							*				
(U) Test Van Deployment							*				
(U) Baseline Software Development								X			
(U) Conduct B-2 Initial Integration Testing								X			
(U) Develop Platform Specific Software									X		
(U) Develop Advanced Diagnostics									X		
(U) Hardware Design Review										X	
(U) DT&E										X	
(U) OT&E											X
(U) LRIP Production - FY03											
(U) System Deliveries Begin (FY03)											
* = Completed event											
X = Planned event											

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604762F Common Low Observable Verification Sys			PROJECT 4683			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	CLOVerS Development Contract					9,578		11,208		6,468	
(U)	CLOVerS Development Contract Award Fee					0		96		48	
(U)	Program Office Support					126		211		197	
(U)	Total					9,704		11,515		6,713	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
		<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	Boeing Co., St Louis	CPAF/FPIF	May 99	21,910	22,263	3,093	9,578	11,304	6,516	0	30,491
	<u>Support and Management Organizations</u>										
	ASC/AAZ, WPAFB OH	Various				1,561	126	211	197	0	2,095
	<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:											
	<u>Contract</u>	<u>Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Item</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Description</u>										
	<u>Product Development Property</u>										
	Advanced Diagnostic Analysis Package (ADAP) and Radar Diagnostic Expert Equipment (RDES) software will be available to the contractor. Imaging Data from the B-2, F-117, and F-22 will be provided as appropriate. Current landing gear shrouds and flight control surface supports will be used until the CLOVerS items are developed. Imaging data (classified) on relevant platforms will be provided for software algorithm development.										
	<u>Support and Management Property</u>										
	<u>Test and Evaluation Property</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT
05 - Engineering and Manufacturing Development			0604762F Common Low Observable Verification Sys			4683
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	3,093	9,578	11,304	6,516	0	30,491
Subtotal Support and Management	1,561	126	211	197	0	2,095
Subtotal Test and Evaluation						
Total Project	4,654	9,704	11,515	6,713	0	32,586

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604779F Tactical Data Link Interoperability					PROJECT 2189	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2189	JINTACCS	5,080	5,771	5,677	5,748	5,846	5,968	6,124	31,531	Continuing	TBD
Quantity of RDT&E Articles		0	0	0	0	0	0	0	0	0	0

Note: FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 The Joint Interoperability of Tactical Command and Control Systems (JINTACCS) Program is a Joint Staff directed program that provides the sole Air Force (AF) activity responsible for ensuring the interoperability of AF Tactical Data Links (TDLs) [including, but not limited to Tactical Digital Information Links (TADILs) and Variable Message Formats (VMF)] and United States Message Text Format (USMTF) systems with the associated Joint and allied/coalition systems. The requirements for the program are delineated in DoDD 4630.5, DoDD 4630.8, CJCSI 6212.01B, and AFI 33-108. The program ensures platform/system interoperability through the development and management of the joint/combined architecture, tactical information exchange requirements (IERs), interface definitions and protocols, platform/system implementations, employment concepts, and operating procedures. This includes the coordination of all TDL and USMTF message standards configuration management, platform/system interoperability assessments and interoperability certification testing. Air Force platforms/systems participating in, and affected by, this program include: Airborne Warning and Control System (AWACS); Airborne Battlefield Command and Control Center (ABCCC); Modular Control Element (MCE); Air Operations Center (AOC); Joint Surveillance Target Attack Radar System (JSTARS); F-15 A/B/C/D/E; F-16 B30/40/50; F-22; A/OA-10; Joint Strike Fighter (JSF); Airborne Laser (ABL); B-1; B-2; B-52; F-117; RC-135; Regional/Sector Air Operations Center (RAOC/SAOC), Command & Control Information Processing System (C2IPS); Space Based Infrared System (SBIRS); Iceland Air Defense System (IADS); Air Support Operations Center (ASOC); and Tactical Air Control Parties (TACPs), Theater Battle Management Corps System (TBMCS), Contingency Automated Theater Automated Planning System (CTAPS), Combat Intelligence System (CIS), Air Defense System Integrator (ADSI), Distributed Common Ground System (DCGS), North American Aerospace Defense Command (NORAD)/United States Space Command (USSPACECOM) Warfighting Support System (N/UWSS), Region/Sector Air Operations Center (R/SAOC) AWACS Digital Information Link, and Global Command and Control System (GCCS)-Air Force (GCSS-AF). The Air Force JINTACCS program supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., ATO and ACO).

(U) **FY 2000 (\$ in Thousands)**

(U) \$1,190 Continue Interoperability Certification Testing
 - Specific platforms are determined based on initial Link 16 message implementation, software upgrade, and system modification schedules

(U) \$1,322 Continue US Message Text Formats Management

(U) \$2,568 Continue Tactical Data Link Management and Architecture Development

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0604779F Tactical Data Link Interoperability	2189
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	<ul style="list-style-type: none"> - Support multiple multi TADIL & VMF meetings and working groups - Consultations regarding implementation and interoperability with the F-16 - Consultations regarding software updates and interoperability with the F-15C, E-3, E-8, ABL 	
(U) \$5,080	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$437	Continue Interoperability Certification Testing <ul style="list-style-type: none"> - Specific platforms for FY01 will be determined based on initial Link 16 message implementation, software upgrade, and system modification schedules. 	
(U) \$1,866	Continue US Message Text Formats Management	
(U) \$3,468	Continue Tactical Data Link Management and Architecture Development <ul style="list-style-type: none"> - Support multi TADIL & VMF meetings and working groups - Consultations regarding implementation and interoperability with the F-16 - Consultations regarding software updates and interoperability with the F-15C, E-3, E-8, ABCCC, CRC/CRE 	
(U) \$5,771	Total	
Note: The following net transactions are not reflected in the FY01 program total: SBIR = -178K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$646	Continue Interoperability Certification Testing. Specific platforms for FY 02 will be determined based on Link 16 message implementation, software upgrade, and system modification	
(U) \$1,711	Continue US Message Text Formats Management and Updates <ul style="list-style-type: none"> - Support Joint, Allied/Coalition meetings and working groups - Support technology maturation for joint standards and DoD policy 	
(U) \$3,320	Continue Tactical Data Link Management and Architecture Development. <ul style="list-style-type: none"> - Support multi TADIL and VMF meetings and working groups - Consultations regarding implementation and interoperability with the F-16, B-52, B-1, B-2, F-117 - Consultations regarding software updates and interoperability with the F-15C, E-3, E-8, ABCCC, CRC/CRE, TULIP 	
(U) \$5,677	Total	
Project 2189	Page 2 of 7 Pages	Exhibit R-2 (PE 0604779F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																								
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604779F Tactical Data Link Interoperability			PROJECT 2189																																																								
<p>(U) <u>B. Budget Activity Justification</u> This program is in budget activity 5 - Engineering and Manufacturing Development, because it is designed to improve the interoperability of Tactical Command and Control (C2) Systems used in support of joint operations.</p>																																																															
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:55%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">5,798</td> <td style="text-align: right;">5,825</td> <td style="text-align: right;">5,889</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">5,798</td> <td style="text-align: right;">5,825</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-695</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-23</td> <td style="text-align: right;">-54</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">-212</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">5,080</td> <td style="text-align: right;">5,771</td> <td style="text-align: right;">5,677</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> None</p>										<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	5,798	5,825	5,889	TBD	(U) Appropriated Value	5,798	5,825			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions					b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram	-695				d. Below Threshold Reprogram					e. Rescissions	-23	-54			(U) Adjustments to Budget Years Since FY 2001 PBR			-212		(U) Current Budget Submit/FY 2002 PBR	5,080	5,771	5,677	TBD
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																																											
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<p>(U) <u>E. Acquisition Strategy</u> As the Air Force lead agent for a jointly directed program, JINTACCS provides level of effort technical support for increasing interoperability of AF programs through message text and data link standards implementation.</p>																																																															
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Project 2189																																																															

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604779F Tactical Data Link Interoperability					PROJECT 2189			
(U) F. Schedule Profile Continued													
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4	
(U) F-16 - Complete OFP M-3 baseline Implementation/Interoperability	*												
(U) E-8 - Complete ASU Spiral 1 Implementation/Interoperability					*								
(U) AOC - Complete baseline Implementation/Interoperability			*										
(U) F-15C - Interoperability consultation for Software upgrades.	*				*				X				
(U) F-16 - Interoperability consultation for Software upgrades.		*		*		*		X		X		X	
(U) E-3 - Interoperability consultation for Software upgrades.		*		*			*	X		X		X	
(U) E-8 - Interoperability consultation for Software upgrades.			*								X		
(U) ABCCC - Interoperability consultation for Software upgrades.				*				X				X	
(U) CRC/CRE - Interoperability consultation for Software upgrades.		*					*			X			
(U) AOC - Interoperability consultation for Software upgrades.				*				X				X	
(U) F-15E - Interoperability consultation for Software upgrades.			*		*		*		X		X		
(U) ABL - Interoperability consultation for Software upgrades.					*				X				
(U) B-1 - Interoperability consultation for Software upgrades.					*				X				
(U) B-2 - Interoperability consultation for Software upgrades.	*	*	*	*	*		*		X		X		
(U) B-52 - Interoperability consultation for Software upgrades.					*				X				
(U) F-22 - Interoperability consultation for Software upgrades.					*				X				
(U) F-117 - Interoperability consultation for Software upgrades.					*				X				
(U) Joint StrikeFighter (JSF) - Interoperability consultation for Software							*				X		
(U) R/SAOC - Interoperability consultation for Software upgrades.							*	X		X		X	
(U) IADS - Interoperability consultation for Software upgrades.							*	X		X		X	
(U) TACP/ASOC - Interoperability consultation for Software upgrades.					*	*	*	X		X		X	
(U) Interoperability Certification Testing													
(U) (Passed Joint and CAF Interoperability)													
(U) - MCE P3I													
(U) CAF					*					X			
(U) Joint	*						*				X		
(U) - JSTARS													

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development						PE NUMBER AND TITLE 0604779F Tactical Data Link Interoperability						PROJECT 2189			
(U) F. Schedule Profile Continued															
			<u>FY 2000</u>					<u>FY 2001</u>					<u>FY 2002</u>		
		1	2	3	4	1	2	3	4	1	2	3	4		
(U)	CAF	*					*		X		X		X		
(U)	Joint		*					*		X			X		
(U)	- E-3 AWACS														
(U)	CAF				*					X					
(U)	Joint					*					X		X		
(U)	- F-15C														
(U)	CAF						*								
(U)	Joint								X						
(U)	- F-15E														
(U)	CAF	*					*		X						
(U)	Joint		*										X		
(U)	- IADS														
(U)	CAF				*			*					X		
(U)	Joint	*					*			X					
(U)	- ABCCC														
(U)	CAF							*							
(U)	Joint											X			
(U)	- RADIL														
(U)	CAF												X		
(U)	Joint										X				
(U)	- ABL														
(U)	CAF												X		
(U)	Joint														
(U)	- F-16														
(U)	CAF								X			X			
(U)	Joint														
(U)	- TACP														

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001									
BUDGET ACTIVITY					PE NUMBER AND TITLE						PROJECT									
05 - Engineering and Manufacturing Development					0604779F Tactical Data Link Interoperability						2189									
(U) F. Schedule Profile Continued																				
					<u>FY 2000</u>							<u>FY 2001</u>						<u>FY 2002</u>		
					1	2	3	4	1	2	3	4	1	2	3	4				
(U)		CAF																		X
(U)		Joint																		X
(U)		- ADSI																		
(U)		Joint									*									
(U)		OPFAC INSTALL/INTEGRATION																		
(U)		- F-15E Complete																		
		* Denotes completed event																		
		X Denotes planned event																		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604779F Tactical Data Link Interoperability			PROJECT 2189		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>
(U)	Interoperability Certification Testing				1,190		437			646
(U)	US Message Text Formats Management				1,322		1,866			1,711
(U)	Tactical Data Links Management				2,568		3,468			3,320
(U)	Total				5,080		5,771			5,677
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>										
<u>Support and Management Organizations</u>										
MITRE	CPAF	OCT 72			35,228	2,199	3,062	3,013	Continuing	TBD
B3H	CPFF	MAY 97			2,494	1,355	1,937	1,919	Continuing	TBD
COMPTEK	CPAF	OCT 92			3,728	0	0		Continuing	TBD
HTI	CPAF	OCT 94			1,300	0	0		0	1,300
Prog Office	Various	Various			243	335	335	335	Continuing	TBD
AF Participating Test Unit (PTU)	PO/616	OCT 97			1,242	1,191	437	410	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Subtotals</u>										
Subtotal Product Development										
Subtotal Support and Management					44,235	5,080	5,771	5,677	TBD	TBD
Subtotal Test and Evaluation										
Total Project					44,235	5,080	5,771	5,677	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD	PROJECT 3831
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3831 Joint Strike Fighter	0	0	769,511	1,747,738	1,953,957	2,124,460	2,115,394	1,508,255	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	TBD

THIS PROGRAM ELEMENT (PE) CONTINUES DEVELOPMENT EFFORTS BUDGETED IN PE 0603800F PRIOR TO FISCAL YEAR 2002.

'FY03-FY07 USAF BUDGET NUMBERS DO NOT REFLECT THE DOD STRATEGIC REVIEW RESULTS.'

(U) A. Mission Description

The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the needs of the USN, USAF, and USMC and allies, with optimum commonality among the variants to minimize life cycle costs. This is a joint program with no executive service. The Navy and Air Force each provide equal shares of annual funding to the program. The United Kingdom (UK) is a partner in this phase, and agreements with several other countries are in negotiation.

PROGRAM EMD FUNDING BREAKOUT REFLECTS NAVY, AIR FORCE AND UK FUNDING ONLY. EXCLUDES TBD ANTICIPATED OTHER INTERNATIONAL FUNDING.

QUANTITY OF RDT&E ARTICLES ARE PENDING SOURCE SELECTION.

(U) FY 2000 (\$ in Thousands)

(U) \$0 Non applicable

(U) \$0 Total

(U) FY 2001 (\$ in Thousands)

(U) \$0 FY 2001 appropriated funding was reprogrammed to PE 0603800F.

(U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
05 - Engineering and Manufacturing Development		0604800F Joint Strike Fighter EMD		3831	
(U) A. Mission Description Continued					
(U) FY 2002 (\$ in Thousands)					
(U)	\$1,631,749	Prepare for and commence execution of EMD for a tri-service family of aircraft, continue development of an alternate engine for production (previously begun in associated Program Element 0603800F and 0603800N) and provide mission support, including program office functions. Further EMD funding breakout is TBD pending completion of source selection.			
(U)	\$1,631,749	Total			
(U) B. Budget Activity Justification					
This program is funded under ENGINEERING & MANUFACTURING DEVELOPMENT (EMD) because it encompasses new engineering and manufacturing development end items prior to production approval decision.					
(U) C. Program Change Summary (\$ in Thousands)					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	0	299,540	1,297,012	TBD
(U)	Appropriated Value	0	101,275		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions		-929		
	b. Small Business Innovative Research				
	c. Omnibus or Other Above Threshold Reprogram		-100,346		
	d. Below Threshold Reprogram				
	e. Rescissions				
(U)	Adjustments to Budget Years Since FY 2001 PBR			-527,501	
(U)	Current Budget Submit/FY 2002 PBR	0	0	769,511	TBD
(U) Significant Program Changes:					
Funding: The FY 2001 \$299.540 million decrease reflects a Congressional reduction for a projected schedule delay (-\$198.265M), a Congressional reprogramming reduction (-\$100.346M) to PE 0603800F and a Congression General Reduction (-\$.929M). FY2002 \$527.501 million decrease reflects a Service reduction due to the delay in EMD start.					
Schedule: Milestone II and EMD starts were delayed from Spring 2001 to Fall 2001 due to the delayed start of contractors' Concept Demonstration Phase (CDP) flight demonstrations.					
Project 3831		Page 2 of 6 Pages	Exhibit R-2 (PE 0604800F)		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD				PROJECT 3831		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E										
(U) RDT&E 0603800F	249,088	341,167	0	0	0	0	0	0	0	1,907,352
(U) RDT&E 0603800N	238,420	341,164	0	0	0	0	0	0	0	1,950,617
(U) RDT&E 0603800E	0	0	0	0	0	0	0	0	0	118,006
(U) UNITED KINGDOM	26,101	800								200,291
(U) MULTI-LATERAL	5,100	1,700								32,100
(U) CANADA	3,300	0								10,600
(U) ITALY	0	0								10,000
(U) RDT&E 0604800N	0		767,238							TBD
(U) United Kingdom (EMD)			95,000							TBD
(U) Other APPN										
(U) USAF 0207142F										TBD
(U) APN-1 0204146N										TBD
'FY03-FY07 USAF BUDGET NUMBERS DO NOT REFLECT THE DOD STRATEGIC REVIEW RESULTS.'										
'FY03-FY07 NAVY AND UK BUDGET NUMBERS ARE PENDING DOD STRATEGIC REVIEW RESULTS.'										
Note 1: Multi-Lateral countries include Netherlands, Norway and Denmark.										
Note 2: The JSF is a joint program with no executive service.										
(U) E. Acquisition Strategy										
Program activities in the CDP phase center around three distinct objectives that provide a sound foundation for the start of Engineering and Manufacturing Development (EMD) in Fall 2001:										
(1) facilitating the Services' development of fully validated, affordable operational requirements;										
(2) lowering risk by investing in and demonstrating key leveraging technologies that lower the cost of development, production and ownership; and										
(3) demonstrating operational concepts.										
Early warfighter and technologist interaction was an essential aspect of the requirements definition process, and key to achieving JSF affordability goals. To an unprecedented degree, the JSF program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost at every stage. Each iteration of the requirements was provided to										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)						DATE June 2001																																						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD		PROJECT 3831																																						
<p>(U) <u>E. Acquisition Strategy Continued</u></p> <p>industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved JSF Operational Requirements Document (ORD) in FY2000.</p> <p>A sizable technology maturation effort was conducted to reduce risk and life cycle cost (LCC) through technology maturation and demonstration. The primary emphasis was on technologies identified as high payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and life cycle cost impact to component, subsystem and the total system.</p> <p>In November 1996, contracts were competitively awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and are flying concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin are demonstrating commonality and modularity, Short Take Off/ Vertical Land (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney is providing propulsion hardware and engineering support.</p> <p>General Electric continues the development of a second, interchangeable, engine for competition in production.</p> <p>Downselect to a single prime weapon system contractor for EMD and Milestone II are planned in Fall 2001.</p>																																												
<p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border: none;"> <thead> <tr> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td colspan="8"></td> <td style="text-align: center;">X</td> <td colspan="4"></td> </tr> </tbody> </table>								<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4									X				
<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>																																				
1	2	3	4	1	2	3	4	1	2	3	4																																	
								X																																				
<p>(U) Milestone II and Award of EMD Contract: Fall 2001</p>																																												
Project 3831		Page 4 of 6 Pages				Exhibit R-2 (PE 0604800F)																																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD			PROJECT 3831			
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Engineering and Manufacturing Development (EMD) (Note 1)					0		0		1,631,749	
(U)	Total					0		0		1,631,749	
	Note 1:										
	- Further FY2002 EMD funding breakout is TBD pending completion of source selection.										
	- Excludes TBD anticipated other international funding.										
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	EMD (Note 1)	TBD	TBD			0	0	0	1,631,749	Continuing	TBD
	<u>Product Development Organizations</u>										
	<u>Support and Management Organizations</u>										
	<u>Test and Evaluation Organizations</u>										
	Note 1:										
	- Further FY2002 EMD funding breakout is TBD pending completion of source selection.										
	- Total program funding is TBD pending source selection and DoD Strategic Review results.										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Product Development Property</u>										
	<u>Support and Management Property</u>										
	<u>Test and Evaluation Property</u>										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT
05 - Engineering and Manufacturing Development			0604800F Joint Strike Fighter EMD			3831
<u>Subtotals</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development	0	0	0	1,631,749	TBD	TBD
Subtotal Support and Management						
Subtotal Test and Evaluation						
Total Project	0	0	0	1,631,749	TBD	TBD
<p>'FY03-FY07 USAF, NAVY AND UK BUDGET NUMBERS ARE PENDING DOD STRATEGIC REVIEW RESULTS.'</p> <p>Notes:</p> <ul style="list-style-type: none"> - Excludes TBD anticipated other international funding. - Total program funding is TBD pending completion of source selection and DoD Strategic Review results.. 						

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604805F Commercial Operations and Support Savings Initiative					PROJECT 4771	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4771	Commercial O&S Savings Initiative	17,272	19,669	0	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

Note: FY 2003-FY 2007 budget numbers do not reflect the DoD strategy review results.

(U) **A. Mission Description**
 This program reduces total ownership costs, particularly Operations and Support (O&S) costs, through insertion of commercial products and processes into fielded military systems. These savings are expected to result by reducing the costs of parts and maintenance, reducing the need for specialized equipment, increasing reliability, and increasing efficiency of subsystems. Commercial Operations and Support Savings Initiative (COSSI) projects will be performed in two stages. In Stage I, each competitively selected, flexible cost-share proposal will provide the Non-Recurring Engineering (NRE) required to create a kit that can be used in a fielded military system and perform the testing needed to verify that inserted kits will produce O&S cost savings while at least maintaining the current system level of performance of the fielded system. Based on the results of a Stage I project, the Air Force will decide whether to proceed to Stage II. The goal in Stage II is to purchase a reasonable production quantity of kits based on a fair and reasonable price (i.e., the value of the kits vice the cost of the kits to the Air Force under a Federal Acquisition Regulation (FAR) vehicle). COSSI is a valuable tool for reducing total ownership cost of fielded weapon systems and offers an opportunity for the Air Force to leverage the commercial sector's much faster product development and technology refresh cycle times. The program is designed to be attractive to non-traditional defense suppliers as well through the use of flexible Other Transaction (OT) contracts.

(U) **FY 2000 (\$ in Thousands)**

(U) \$10,192 Leveraged commercial electronics and software to swap existing military processors with form, fit, and function replacements to increase reliability, obsolescence avoidance, and software commonality. Progressed toward replacing array processors in fighter aircraft radar to improve reliability and reduce maintenance costs and aircraft down time.

(U) \$5,810 Reduced inventory requirements, maintenance turn times, and mobility deployment footprints through insertion of reliable commercial items. Replaced pyrotechnic-activated weapon release system with pneumatic-based one to decrease maintenance hours, hazardous waste, and airlift of explosive devices.

(U) \$1,270 Reduced test, technical manual, and training costs through automation and use of commercial hardware and software. Replaced two boxes of avionics test station with one that is commercially-based, more reliable, and able to test a greater number of subsystems.

(U) \$17,272 Total

Project 4771

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
		June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0604805F Commercial Operations and Support Savings Initiative	4771		
(U) A. Mission Description Continued				
(U) FY 2001 (\$ in Thousands)				
(U) \$11,669	Leverage commercial electronics and software to swap existing military processors with form, fit, and function replacements to increase reliability, obsolescence avoidance, and software commonality. Likely demonstration platforms include fighter aircraft avionics components.			
(U) \$5,000	Reduce inventory requirements, maintenance turn times, and mobility deployment footprints through insertion of reliable commercial items. Aircraft engine parts, particularly for fighter and cargo planes, represent possible improvement areas.			
(U) \$3,000	Reduce test, technical manual, and training costs through automation and use of commercial hardware and software. Common or adaptable test stands may be emphasized.			
(U) \$19,669	Total			
(U) FY 2002 (\$ in Thousands)				
(U) \$0	No Activity			
(U) \$0	Total			
(U) B. Budget Activity Justification				
This program is in Budget Activity 4, Demonstration and Validation, since it includes efforts necessary to evaluate integrated technologies in as realistic an operating environment as possible to assess performance or cost reduction potential.				
(U) C. Program Change Summary (\$ in Thousands)				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	19,904	19,851	19,833	
(U) Appropriated Value	20,485	19,851		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions				
b. Small Business Innovative Research	-1,054			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-1,633			
e. Rescissions	-526	-182		
(U) Adjustments to Budget Years Since FY 2001 PBR			-19,833	
(U) Current Budget Submit/FY 2002 PBR	17,272	19,669	0	TBD
Project 4771	Page 2 of 5 Pages	Exhibit R-2 (PE 0604805F)		

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																																																																																								
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604805F Commercial Operations and Support Savings Initiative				PROJECT 4771																																																																																																																							
<p>(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u></p> <p>(U) <u>Significant Program Changes:</u> Program terminated in FY 2002.</p> <p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td style="text-align: center;"><u>Actual</u></td> <td style="text-align: center;"><u>Estimate</u></td> <td style="text-align: center;"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Related Activities:</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) PE 0602805F, Dual Use Science and Technology (DUST).</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>E. Acquisition Strategy</u> As authorized by Congress, Other Transactions (OTs) for prototypes will be used during Stage I. Project selections will be made using full and open competition.</p> <p>(U) <u>F. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <td></td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> <td style="text-align: center;">1</td><td style="text-align: center;">2</td><td style="text-align: center;">3</td><td style="text-align: center;">4</td> </tr> </thead> <tbody> <tr> <td>(U) Request For Release (RFP) Release</td> <td></td><td style="text-align: center;">X</td><td></td><td></td> <td></td><td></td><td style="text-align: center;">X</td><td></td> <td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Contract Awards</td> <td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td></td> <td></td><td style="text-align: center;">X</td><td style="text-align: center;">X</td><td style="text-align: center;">X</td> <td></td><td></td><td></td><td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN											(U) Related Activities:											(U) PE 0602805F, Dual Use Science and Technology (DUST).												<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Request For Release (RFP) Release		X					X						(U) Contract Awards		X	X			X	X	X										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																																																					
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Project 4771			Page 3 of 5 Pages				Exhibit R-2 (PE 0604805F)																																																																																																																								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0604805F Commercial Operations and Support Savings Initiative			4771		
(U) A. Project Cost Breakdown (\$ in Thousands)										
					FY 2000		FY 2001			FY 2002
(U)	Leverage commercial electronics and software to swap existing military processors with form, fit, and function replacements				10,192		11,669			0
(U)	Reduce inventory requirements, maintenance turn times, and mobility deployment footprints through insertion of reliable commercial items				5,810		5,000			0
(U)	Reduce test, technical manual, and training costs through automation and use of commercial hardware and software				1,270		3,000			
(U)	Total				17,272		19,669			0
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
L-3 Communications	OTA	Jun 99	N/A	N/A	0	0	0	0	0	0
Marconi Avionics	OTA	Aug 99	N/A	N/A	0	0	0	0	0	0
Telephonics	OTA	Sep 99	N/A	N/A	0	0	0	0	0	0
Lockheed-Martin	OTA	Jul 99	N/A	N/A	0	0	0	0	0	0
AIL Systems	OTA	Sep 99	N/A	N/A	0	0	0	0	0	0
CPU Technologies	OTA	TBD	N/A	N/A	0	6,000	0	0	0	6,000
Marconi Integrated	OTA	TBD	N/A	N/A	0	1,270	0	0	0	1,270
Boeing St Louis	OTA	TBD	N/A	N/A	0	7,581	0	0	0	7,581
Numerous	OTA	TBD	N/A	N/A	0	2,421	19,669	0	Continuing	TBD
<u>Support and Management Organizations</u>										
<u>Test and Evaluation Organizations</u>										
Project 4771					Page 4 of 5 Pages			Exhibit R-3 (PE 0604805F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE		
BUDGET ACTIVITY				PROJECT		
05 - Engineering and Manufacturing Development				0604805F Commercial Operations and Support		
				4771		
				Savings Initiative		
(U) Government Furnished Property:						
	<u>Contract</u>	<u>Award or</u>				
	<u>Method/Type</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>
<u>Description</u>	<u>Vehicle</u>					<u>Budget</u>
						<u>FY 2002</u>
						<u>Budget to</u>
						<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Product Development Property</u>						
None						
<u>Support and Management Property</u>						
None						
<u>Test and Evaluation Property</u>						
None						
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>
				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>
						<u>Budget</u>
						<u>FY 2002</u>
						<u>Budget to</u>
						<u>Complete</u>
						<u>Total</u>
						<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development				0	17,272	19,669
Subtotal Support and Management						0
Subtotal Test and Evaluation						TBD
Total Project				0	17,272	19,669
						0
						TBD
						TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	36,096	18,157	81,086	109,545	86,033	48,966	19,892	0	Continuing	TBD
133B Rapid Execution & Combat Targeting (REACT)	0	0	5,255	20,711	15,767	14,063	0	0	0	55,796
4210 Propulsion Replacement Program (PRP)	27,919	0	0	0	0	0	0	0	0	328,325
4371 Safety Enhanced Reentry Vehicle (SERV) Program	0	0	52,406	64,332	56,231	34,903	19,892	0	0	227,764
4788 PSRE Life Extension Program	8,177	18,157	19,425	12,481	0	0	0	0	0	58,240
4823 ECS Replacement Program	0	0	0	12,021	14,035	0	0	0	0	26,056
5007 GPS Metric Tracking Capability	0	0	4,000	0	0	0	0	0	Continuing	TBD
Quantity of RDT&E Articles	0	0	3	3	3	0	0	0	0	9

FY01: Notification of Completion for the Propulsion Replacement Program, BPAC 654210, provided with FY01 President's Budget Submission.

FY02:

- Rapid Execution & Combat Targeting (REACT), BPAC 65133B, previously identified as a new start in the FY01 President's Budget Submission
- Safety Enhanced Reentry Vehicle (SERV) Program, BPAC 654371
- SERV is a new start initiated with this President's Budget Submission.
- RDT&E articles identified support the SERV Program. See Program Exhibit R-2A for details.
- Global Positioning System (GPS) Metric Tracking Program, BPAC 655007, is a new start initiated with this President's Budget Submission.

FY03 - FY07:

This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY

05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604851F ICBM - EMD

(U) A. Mission Description

ICBM modernization efforts will extend the operational life of the Minuteman ICBM weapon system. Rapid Execution and Combat Targeting (REACT), which will begin its System Development and Demonstration (SDD) effort in FY02, will correct REACT security alarm management system and launch readiness deficiencies. The Safety Enhanced Reentry Vehicle (SERV) Program, which enters SDD in FY02, will design, develop, and test the modifications necessary to adapt the Minuteman III Reentry System to accommodate the Mk 21 Reentry Vehicle. The Global Positioning System (GPS) Metric Tracking Capability Program will design and develop the modifications to the Minuteman III Range Safety Wafer to use GPS for obtaining real-time flight data on the Minuteman performance to meet range safety and flight test objectives. The Environmental Control System (ECS) Replacement Program, which enters SDD in FY03, will refurbish, update, and/or replace components of the Minuteman ECS in the Launch Facilities (LFs) and Missile Alert Facilities (MAFs). The Propulsion System Rocket Engine (PSRE) Life Extension Program (LEP), which entered Engineering Manufacturing and Development (EMD) in FY00, refurbishes the Minuteman post-boost vehicle (PBV) to correct age-related degradations. The Propulsion Replacement Program (PRP), which completed EMD in FY00, remanufactures all three Minuteman solid fuel stages to correct age-related degradations.

Requirements for maintaining the Minuteman Weapon System are defined and validated in current defense planning guidance documentation. All of these modernization programs are designed to keep the Minuteman Weapon System at least at its required availability and reliability levels.

(U) B. Budget Activity Justification

This program is in Budget Activity 05 - Engineering and Manufacturing Development because the projects are being developed for the Air Force but have not received production approval. Program control is exercised at the project level.

(U) C. Program Change Summary (\$ in Thousands)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	38,235	18,325	43,659	956,932
(U) Appropriated Value	38,804	18,325		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-302	-128		
b. Small Business Innovative Research	-1,410			
c. Omnibus or Other Above Threshold Reprogram	-8			
d. Below Threshold Reprogram	-836			
e. Rescissions	-152	-40		
(U) Adjustments to Budget Years Since FY 2001 PBR			37,427	
(U) Current Budget Submit/FY 2002 PBR	36,096	18,157	81,086	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

June 2001

BUDGET ACTIVITY

05 - Engineering and Manufacturing Development

PE NUMBER AND TITLE

0604851F ICBM - EMD**(U) C. Program Change Summary (\$ in Thousands) Continued****(U) Significant Program Changes:**

FY02:

- Safety Enhanced Reentry Vehicle (SERV) Program is a new start initiated with this President's Budget Submission.
- Global Positioning System (GPS) Metric Tracking Program is a new start initiated with this President's Budget Submission.
- Start of the Environmental Control System (ECS) Replacement Program was delayed from FY02 to FY03.
- Funding increase to support new starts identified above.

FY02 - FY07: Funding adjustments the result of restructuring the REACT Program and the addition of funding for the SERV Program. See specific R-2A Exhibits for details.

Total Cost: Total cost summary reflects the deletion of RDT&E funding for the Guidance Replacement Program which completed Engineering and Manufacturing Development (EMD) in FY99 and is no longer reported in the RDT&E Budget Item Justification.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD					PROJECT 133B	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
133B Rapid Execution & Combat Targeting (REACT)	0	0	5,255	20,711	15,767	14,063	0	0	0	55,796
<p>FY02: Identified as a new start in the FY01 President's Budget Submission.</p> <p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> The Rapid Execution and Combat Targeting (REACT) Service Life Extension Program (SLEP) will modify the 50 Minuteman (MM) III Launch Control Centers, (LCCs) Weapon System Control Consoles and the 19 other trainer and test facilities which support the MM weapon system. REACT is extremely software dependent, and all the replacement hardware and its associated software must be integrated and tested to ensure complete system capability.</p> <p>Hardware and software changes include modernizing and/or upgrading the Head Disk Assembly (HDA), the Visual Display Unit (VDU), the Embedded Memory Array Dynamic (EMAD) Card, and the REACT Console Operations Programs (COPs). Specifically, RDT&E funding will be used to design, develop, test, and qualify the new EMAD card as well as the software used to correct the identified deficiencies.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$4,098 Design, develop, test and qualify the new EMAD Card. (U) \$1,000 Software Development (U) \$157 Other Program Costs (U) \$5,255 Total</p>										
Project 133B			Page 4 of 24 Pages				Exhibit R-2A (PE 0604851F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																										
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 133B																																																																																										
<p>(U) <u>B. Project Change Summary</u> - New start identified in the FY01 President's Budget Submission. - The System Development and Demonstration (SDD) phase was restructured to incorporate development efforts previously projected as MPAF.</p>																																																																																																	
<p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:5%;"><u>FY 2000</u></th> <th style="width:5%;"><u>FY 2001</u></th> <th style="width:5%;"><u>FY 2002</u></th> <th style="width:5%;"><u>FY 2003</u></th> <th style="width:5%;"><u>FY 2004</u></th> <th style="width:5%;"><u>FY 2005</u></th> <th style="width:5%;"><u>FY 2006</u></th> <th style="width:5%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to Complete</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align:center"><u>Actual</u></th> <th style="text-align:center"><u>Estimate</u></th> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Other APPN</td> <td></td> </tr> <tr> <td>(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, REACT, Mod #3413) (BA-03, P-012)</td> <td></td> <td></td> <td style="text-align:right">14,051</td> <td style="text-align:right">15,243</td> <td style="text-align:right">15,269</td> <td style="text-align:right">7,196</td> <td style="text-align:right">125</td> <td></td> <td></td> <td style="text-align:right">51,884</td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>			(U) Other APPN											(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, REACT, Mod #3413) (BA-03, P-012)			14,051	15,243	15,269	7,196	125			51,884																																																		
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>																																																																																							
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<p>(U) <u>D. Acquisition Strategy</u> A Cost Plus Award Fee (CPAF) modification to the ICBM Prime Integration Contract with effort to begin in Jan 02 is planned.</p>																																																																																																	
<p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th colspan="3" style="text-align:center"><u>FY 2000</u></th> <th colspan="3" style="text-align:center"><u>FY 2001</u></th> <th colspan="3" style="text-align:center"><u>FY 2002</u></th> </tr> <tr> <td></td> <th style="text-align:center">1</th> <th style="text-align:center">2</th> <th style="text-align:center">3</th> <th style="text-align:center">4</th> <th style="text-align:center">1</th> <th style="text-align:center">2</th> <th style="text-align:center">3</th> <th style="text-align:center">4</th> <th style="text-align:center">1</th> <th style="text-align:center">2</th> <th style="text-align:center">3</th> <th style="text-align:center">4</th> </tr> </thead> <tbody> <tr> <td>(U) SDD Contract Award</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align:center">X</td> <td></td> <td></td> </tr> <tr> <td>(U) EMAD Critical Design Review</td> <td></td> <td style="text-align:center">X</td> <td></td> </tr> <tr> <td>(U) EMAD Test Readiness Review</td> <td></td> <td style="text-align:center">X</td> </tr> <tr> <td>(U) * - Completed Event</td> <td></td> </tr> <tr> <td>(U) X - Planned Event</td> <td></td> </tr> </tbody> </table>											<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) SDD Contract Award										X			(U) EMAD Critical Design Review											X		(U) EMAD Test Readiness Review												X	(U) * - Completed Event													(U) X - Planned Event												
	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>																																																																																										
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Project 133B			Page 5 of 24 Pages				Exhibit R-2A (PE 0604851F)																																																																																										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 133B			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Design, Develop, Test, and Qualify the new EMAD Card									4,098	
(U)	Software Development									1,000	
(U)	Other Program Costs									157	
(U)	Total									5,255	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	TRW	C/CPAF	Jan 02	TBD	46,839			5,098	41,741	46,839	
<u>Support and Management Organizations</u>											
	NSSCA	SS/CPAF	Feb 03	TBD	7,545				7,545	7,545	
	Other Government Costs	TBD	Oct 02	TBD	1,412			157	1,255	1,412	
<u>Test and Evaluation Organizations</u>											
(U) Government Furnished Property:											
	<u>Contract</u>	<u>Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>	
	<u>Item</u>	<u>or Funding</u>	<u>Date</u>	<u>Date</u>							
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	None										
<u>Support and Management Property</u>											
	None										
<u>Test and Evaluation Property</u>											
	None										
Project 133B					Page 6 of 24 Pages			Exhibit R-3 (PE 0604851F)			

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY			PE NUMBER AND TITLE			PROJECT
05 - Engineering and Manufacturing Development			0604851F ICBM - EMD			133B
			<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
			<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
					<u>FY 2002</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development					5,098	41,741
Subtotal Support and Management					157	8,800
Subtotal Test and Evaluation						
Total Project					5,255	50,541
						55,796

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD					PROJECT 4210		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4210	Propulsion Replacement Program (PRP)	27,919	0	0	0	0	0	0	0	0	328,325
<p>Notice of Completion provided with FY01 President's Budget Submission.</p> <p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> The Propulsion Replacement Program (PRP) remanufactures all three solid fuel stages to correct age-related degradations, maintain existing weapon system reliability, and support Minuteman life extension. Any of the degradations (propellant cracking, case corrosion, liner deterioration, inhibitor deterioration, and line debond) can cause catastrophic motor failure and, in turn, mission failure. RDT&E efforts will identify replacement materials that are no longer available or which have become environmentally unacceptable, reduce life cycle costs, and identify corrections to age-related degradations. The project entered Engineering and Manufacturing Development in FY94 and finished in FY00.</p> <p>RDT&E efforts identified replacement materials that are no longer available or which have become environmentally unacceptable, reduce life cycle costs, and identify corrections to age-related degradations. Only changes that could be demonstrated in an appropriate timeframe to ensure Minuteman propulsion system continues to meet existing performance specifications while remaining viable and supportable were incorporated.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$14,042 Completed component reuse and materials replacement studies, continue stage design and development to include refurbishment. Completed fabrication, tooling, and waste disposal for qualification motor testing. (U) \$12,257 Completed integration of program activities such as system engineering, program management, range support, AEDC testing, and booster disassembly/assembly and transportation. (U) \$1,620 Completed software modification. (U) \$27,919 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity - EMD Completed in FY00. (U) \$0 Total</p>											
Project 4210		Page 8 of 24 Pages					Exhibit R-2A (PE 0604851F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD					PROJECT 4210	
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2002 (\$ in Thousands)</u>											
(U) \$0 No Activity - EMD Completed in FY00.											
(U) \$0 Total											
(U) <u>B. Project Change Summary</u>											
No significant changes.											
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U) Other APPN											
(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, MM III Propulsion Replacement Program, Mod #5053) (BA-03, P-012)	90,120	138,155	276,418	262,081	269,102	264,470	282,359	291,243	301,602		2,175,550
(U) <u>D. Acquisition Strategy</u>											
- Planned acquisition will consist of all hardware and software modifications; integration and flight test support; delivery of remanufactured Stage I, II, and III motors; nuclear certification analysis tasks; and independent software certification.											
- All PRP contracts, with the exception of NSCCA and independent software certification, have been transferred to the Prime Integration Contractor (PIC).											
(U) <u>E. Schedule Profile</u>											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U) PROGRAM MILESTONES											
(U) --Milestone III Decision									X		
(U) --First Year Low Rate Initial Production (LRIP) Contract Award				*							
(U) --Second Year LRIP Contract Award								*			
Project 4210				Page 9 of 24 Pages				Exhibit R-2A (PE 0604851F)			

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)										DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD					PROJECT 4210		
(U) <u>E. Schedule Profile Continued</u>												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) --Full Rate Production (FRP) Contract Award									X			
(U) T&E MILESTONES												
(U) --Combined DT&E/IOT&E Flight Test	*											
(U) --Dedicated IOT&E Flight Test					*							
* - Completed Event												
X - Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE June 2001					
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 4210				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Technology Insertion					14,042					
(U)	Software					1,620					
(U)	Other Program Costs					12,257					
(U)	Total					27,919					
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
<u>Contractor or</u>	<u>Contract</u>										
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>							
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>	
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>	
<u>Product Development Organizations</u>											
Thiokol	SS/CPAF	Aug 94	55,875	55,875	55,875					55,875	
Aerojet	SS/CPAF	Jul 94	50,738	50,738	50,738					50,738	
CSD	SS/CPAF	Jul 94	68,508	68,508	68,508					68,508	
Thiokol	C/CPAF	Feb 97	2,262	2,262	2,262					2,262	
Boeing-North American	C/CPAF	Oct 96	1,887	1,887	1,887					1,887	
Logicon	C/CPAF	Oct 96	2,869	2,869	2,749	120				2,869	
GTE	C/CPAF	Oct 96	1,618	1,618	1,588	30				1,618	
TRW (Prime)	C/CPAF	Dec 97	101,682	101,682	86,116	15,566				101,682	
<u>Support and Management Organizations</u>											
TRW (SETA)	SS/CPAF	Oct 94	20,857	20,857	20,857					20,857	
Program Integration	Various	As Req'd	N/A	N/A	2,500	105				2,605	
Other	Various	As Req'd	N/A	N/A	600	227				827	

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 4210		
(U) <u>Performing Organizations Continued:</u>									
<u>Test and Evaluation Organizations</u>									
AEDC	PO	As Req'd	N/A	N/A	5,640	2,275			7,915
Vandenberg AFB	PO	Nov 99	N/A	N/A	968	9,596			10,564
Wright Labs	PO	As Req'd	N/A	N/A	37				37
Phillips Lab	PO	As Req'd	N/A	N/A	81				81
(U) <u>Government Furnished Property:</u>									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>
Subtotal Product Development					269,723	15,716			285,439
Subtotal Support and Management					23,957	332			24,289
Subtotal Test and Evaluation					6,726	11,871			18,597
Total Project					300,406	27,919			328,325

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604851F ICBM - EMD					PROJECT 4371		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4371	Safety Enhanced Reentry Vehicle (SERV) Program	0	0	52,406	64,332	56,231	34,903	19,892	0	0	227,764
<p>FY02: New start identified in this budget submission.</p> <p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> The Minuteman (MM) III Weapon System is planned to become the only Intercontinental Ballistic Missile (ICBM) component of the Strategic Triad and is required to provide nuclear deterrence. Recent developments concerning nuclear weapons safety and force structure changes driven by strategic arms reductions require the capability to transition Mk 21 Reentry Vehicles (RV) from the Peacekeeper Weapon System to MM III. The Safety Enhanced Reentry Vehicle (SERV) program will modify the MM III Weapon System to accept Mk 21 RVs. These modifications include changes to the MM III Reentry System (RS) to accommodate differences in electrical and mechanical interfaces, system software, support equipment, and trainers. Test articles will be procured in FY02, FY03, and FY04 to support development and qualification testing, systems integration and weapon system testing, as well as flight testing.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$0 No Activity - SDD Begins in FY02 (U) \$0 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity - SDD Begins in FY02 (U) \$0 Total</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u> (U) \$13,726 Perform Minuteman III Airborne Vehicle Equipment hardware and software design for incorporating Mk 21 Reentry Vehicle (RV). (U) \$17,438 Perform Minuteman III Command & Launch Equipment Software design for the incorporating Mk 21 RV. (U) \$7,994 Perform Minuteman III Support Equipment design for the incorporating Mk 21 RV. (U) \$12,935 Perform System Test and Evaluation, to include preplanning and analysis, for all design development required to incorporate Mk 21 RV into the Minuteman III Weapon System. (U) \$313 Perform Trainers/Training design development required to incorporate Mk 21 RV into the Minuteman III Weapon System.</p>											
Project 4371		Page 13 of 24 Pages					Exhibit R-2A (PE 0604851F)				

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																																							
BUDGET ACTIVITY	PE NUMBER AND TITLE					PROJECT																																																																																																																								
05 - Engineering and Manufacturing Development	0604851F ICBM - EMD					4371																																																																																																																								
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p>(U) \$52,406 Total</p> <p>(U) <u>B. Project Change Summary</u> New Start initiated with this budget submission. Program begins in FY02.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table border="0" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 5%;"><u>FY 2000</u></th> <th style="width: 5%;"><u>FY 2001</u></th> <th style="width: 5%;"><u>FY 2002</u></th> <th style="width: 5%;"><u>FY 2003</u></th> <th style="width: 5%;"><u>FY 2004</u></th> <th style="width: 5%;"><u>FY 2005</u></th> <th style="width: 5%;"><u>FY 2006</u></th> <th style="width: 5%;"><u>FY 2007</u></th> <th style="width: 10%;"><u>Cost to Complete</u></th> <th style="width: 10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Other APPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, Safety Enhanced Reentry Vehicle, Mod #5911) (BA-03, P-012)</td> <td></td><td></td><td></td><td></td><td align="right">21,900</td><td align="right">47,900</td><td align="right">25,900</td><td align="right">29,060</td><td align="right">23,592</td><td align="right">148,352</td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Studies, analyses, hardware and software design engineering, and prototype hardware development will be accomplished. All efforts will be conducted under the ICBM Prime Integration Contractor, (IPIC) with the exception of Nuclear Safety Cross Check Analysis (NSCCA) and Performance Analysis & Technical Evaluation (PATE) which will be contracted for separately.</p> <p>(U) <u>E. Schedule Profile</u></p> <table border="0" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;"></th> <th colspan="3" style="width: 15%;"><u>FY 2000</u></th> <th colspan="3" style="width: 15%;"><u>FY 2001</u></th> <th colspan="3" style="width: 15%;"><u>FY 2002</u></th> </tr> <tr> <td></td> <td align="center">1</td><td align="center">2</td><td align="center">3</td> <td align="center">4</td><td align="center">1</td><td align="center">2</td><td align="center">3</td> <td align="center">4</td><td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> </tr> </thead> <tbody> <tr> <td>(U) Complete Pre-EMD (Started Sep 99)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) System Functional Review</td> <td></td><td></td><td></td><td></td><td></td><td align="center">*</td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Milestone B</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Contract Award--System Development & Demonstration (SDD)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td><td></td> </tr> </tbody> </table> <p>* - Completed Event X - Planned Event</p>									<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>			(U) Other APPN											(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, Safety Enhanced Reentry Vehicle, Mod #5911) (BA-03, P-012)					21,900	47,900	25,900	29,060	23,592	148,352		<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Complete Pre-EMD (Started Sep 99)								X					(U) System Functional Review						*							(U) Milestone B								X					(U) Contract Award--System Development & Demonstration (SDD)									X									
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>																																																																																																																				
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Project 4371	Page 14 of 24 Pages					Exhibit R-2A (PE 0604851F)																																																																																																																								

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 4371			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>		<u>FY 2001</u>			<u>FY 2002</u>	
(U)	Component Design/Development									31,477	
(U)	Support Equipment Design/Development									7,994	
(U)	System Test and Evaluation									12,935	
(U)	Total									52,406	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	TRW (Prime)	C/CPAF	Jan 02	TBD	167,820			41,580	126,240	167,820	
<u>Support and Management Organizations</u>											
	NSCCA/PATE	SS/CPAF	Jan 02	TBD	17,306			5,488	11,818	17,306	
	Various	Various	Nov 01	TBD	24,992			5,338	19,654	24,992	
<u>Test and Evaluation Organizations</u>											
	Vandenberg AFB	Project Order	TBD	TBD	17,646				17,646	17,646	
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
<u>Product Development Property</u>											
	None										
<u>Support and Management Property</u>											
	None										

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY	PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development	0604851F ICBM - EMD			4371		
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
None						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				41,580	126,240	167,820
Subtotal Support and Management				10,826	31,472	42,298
Subtotal Test and Evaluation					17,646	17,646
Total Project				52,406	175,358	227,764

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD					PROJECT 4788
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4788 PSRE Life Extension Program	8,177	18,157	19,425	12,481	0	0	0	0	0	58,240
<p>FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> The Propulsion System Rocket Engine (PSRE) Life Extension Program will refurbish the Minuteman (MM) III post-boost vehicle (PBV) propulsion system. This refurbishment will correct age-related degradations, reduce life cycle costs, and support MM III life extension while maintaining existing weapon system reliability. Deficiencies identified (e.g., relief valve aging, titanium pressure sensing (PC) tube cracking, and fuel flex line cracks) may cause system failure/loss of performance and, in turn, potential mission failure. Other deficiencies (e.g., staging connector aging and actuator motor performance) will impact weapon system availability in addition to reducing system performance.</p> <p>RDT&E efforts will identify replacement materials for those no longer available or which have become environmentally unacceptable. The program will then design/develop components and manufacturing processes necessary to correct the identified deficiencies.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$5,938 Began design/development of components requiring refurbishment or replacement. (U) \$2,239 Began design/development of necessary support equipment. (U) \$8,177 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$11,030 Continue component design/development of components requiring refurbishment or replacement. (U) \$2,056 Continue support equipment design/development of necessary support equipment. (U) \$5,071 Begin Test and Evaluation efforts. (U) \$18,157 Total</p> <p>The following net transactions are not reflected in the FY01 Program Total: BTR = -\$2,800K and SBIR = -\$1,154K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p>										
Project 4788			Page 17 of 24 Pages				Exhibit R-2A (PE 0604851F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 4788																																																					
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$8,243 Assemble Qualification Kits, Refurbish Verification PSRE, Conduct Initial Readiness Review of System, Refurbish two Qualification PSREs, Support Dynamics Test Qualification PSREs, Support first qualification test firing, Shipping Container Process Verification.</p> <p>(U) \$2,001 Develop Emergency Response efforts and begin transportation build.</p> <p>(U) \$1,300 Continue Equipment Installation and Integration into the Centrifuge and Pendulum Facility as well as Facility Checkout Testing.</p> <p>(U) \$1,100 Perform Dynamics and Qualification Testing.</p> <p>(U) \$6,781 Provide technician labor activities to include disassembly/reassembly of PSRE and selected subsystems; maintenance and repair of program unique depot support equipment (DSE), special test equipment (STE), and government furnished equipment (GFE); program office support; and other related activities.</p> <p>(U) \$19,425 Total</p> <p>(U) <u>B. Project Change Summary</u> FY01: The following net transactions are not reflected in the FY01 Program Total: BTR = -\$2,800K and SBIR = -\$1,154K. Reprogrammings are to meet higher AF priorities. Internal programming restructured with planning/initiating test and evaluation activities reduced.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table border="0" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:10%;"><u>FY 2000</u></th> <th style="width:10%;"><u>FY 2001</u></th> <th style="width:10%;"><u>FY 2002</u></th> <th style="width:10%;"><u>FY 2003</u></th> <th style="width:10%;"><u>FY 2004</u></th> <th style="width:10%;"><u>FY 2005</u></th> <th style="width:10%;"><u>FY 2006</u></th> <th style="width:10%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td align="center"><u>Complete</u></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Other APPN</td> <td></td> </tr> <tr> <td>(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, PSRE Life Extension, Mod #5768) (BA-03, P-012)</td> <td></td> <td></td> <td></td> <td align="right">9,248</td> <td align="right">22,041</td> <td align="right">21,550</td> <td align="right">21,885</td> <td align="right">22,010</td> <td align="right">37,913</td> <td align="right">134,647</td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> The PSRE Life Extension Program will be conducted under the ICBM Prime Integration Contractor (IPIC) in partnership with the Government.</p> <p>(U) <u>E. Schedule Profile</u></p> <table border="0" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:40%;"></th> <th style="width:20%;"><u>FY 2000</u></th> <th style="width:20%;"><u>FY 2001</u></th> <th style="width:20%;"><u>FY 2002</u></th> </tr> </thead> <tbody> <tr> <td>Project 4788</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) Other APPN											(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications, PSRE Life Extension, Mod #5768) (BA-03, P-012)				9,248	22,041	21,550	21,885	22,010	37,913	134,647		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	Project 4788									
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																			
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>																																																				
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	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>																																																										
Project 4788																																																													
Project 4788			Page 18 of 24 Pages				Exhibit R-2A (PE 0604851F)																																																						

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)											DATE June 2001	
BUDGET ACTIVITY					PE NUMBER AND TITLE						PROJECT	
05 - Engineering and Manufacturing Development					0604851F ICBM - EMD						4788	
(U) <u>E. Schedule Profile Continued</u>												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) CONTRACT MILESTONES												
(U) --EMD Contract Award	*											
(U) --Production Decision												X
(U) ENGINEERING MILESTONES												
(U) --PDR				*								
(U) --CDR									X			
(U) T&E MILESTONES												
(U) First Qualification Test Fire												X
* - Completed Event												
X - Planned Event												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 4788			
(U) A. Project Cost Breakdown (\$ in Thousands)											
					<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		
(U)	Component Design/Development				5,938		11,030		17,025		
(U)	Support Equipment Design/Development				2,239		2,056		1,300		
(U)	System Test and Evaluation						5,071		1,100		
(U)	Total				8,177		18,157		19,425		
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
	<u>Product Development Organizations</u>										
	TRW (Prime)	C/CPAF	Oct 99	40,686	40,686		7,630	14,740	11,530	6,786	40,686
	<u>Support and Management Organizations</u>										
	SPO/OO-ALC Support	WR	Annual	N/A	15,836		547	3,417	6,781	5,091	15,836
	<u>Test and Evaluation Organizations</u>										
	White Sands Test Facility (WSTF)	PO	As Req'd	1,718	1,718				1,114	604	1,718
(U) Government Furnished Property:											
	<u>Item Description</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery Date</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
		<u>Vehicle</u>	<u>Date</u>	<u>Date</u>							
	<u>Product Development Property</u>										
	None										
	<u>Support and Management Property</u>										
	None										

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)					DATE June 2001	
BUDGET ACTIVITY	PE NUMBER AND TITLE				PROJECT	
05 - Engineering and Manufacturing Development	0604851F ICBM - EMD				4788	
(U) <u>Government Furnished Property Continued:</u>						
<u>Test and Evaluation Property</u>						
None						
	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development		7,630	14,740	11,530	6,786	40,686
Subtotal Support and Management		547	3,417	6,781	5,091	15,836
Subtotal Test and Evaluation				1,114	604	1,718
Total Project		8,177	18,157	19,425	12,481	58,240

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604851F ICBM - EMD	PROJECT 5007
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
5007 GPS Metric Tracking Capability	0	0	4,000	0	0	0	0	0	Continuing	TBD

FY02: This is a new start initiated with this President's Budget Submission.

FY03 - FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) A. Mission Description

As part of the ongoing Range Standardization and Automation effort, the retirement of radar-based legacy range instrumentation for tracking and controlling Minuteman force development evaluation (FDE) flights at the Western Range is planned to begin in FY07. The range will be transitioning to a Global Positioning System (GPS) based tracking system. Future procurement of the Minuteman Instrumentation Range Safety Wafers (aka Mod 7 Instrumentation Wafers) will incorporate a GPS translator. The current inventory of instrumentation wafers equipped with radar beacons will run out in second quarter of FY06. Therefore, the Western Range and the Minuteman weapon system must be made ready to support GPS range certification flights in FY04 to ensure that the GPS tracking system (both the ground and on-vehicle segments) is operational by FY06. This program will develop, modify, test and flight certify the necessary GPS hardware integrated in the Mod 7 Instrumentation Wafer to support flight test operations of the Minuteman weapon system from the Western Range using GPS. This metric tracking system will provide range operations with near instantaneous time/space position information and flight profile data required to safely conduct launch operations.

(U) FY 2000 (\$ in Thousands)

- (U)** \$0 No Activity
- (U)** \$0 Total

(U) FY 2001 (\$ in Thousands)

- (U)** \$0 No Activity
- (U)** \$0 Total

(U) FY 2002 (\$ in Thousands)

- (U)** \$3,800 Begin the design and development of the hardware needed to provide Minuteman with a GPS-based metric tracking capability
- (U)** \$200 Provide program office support.
- (U)** \$4,000 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																																																						
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 5007																																																																																																																																					
<p>(U) <u>B. Project Change Summary</u> FY02: This is a new start identified with this President's Budget Submission.</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="width:8%;"><u>FY 2000</u></th> <th style="width:8%;"><u>FY 2001</u></th> <th style="width:8%;"><u>FY 2002</u></th> <th style="width:8%;"><u>FY 2003</u></th> <th style="width:8%;"><u>FY 2004</u></th> <th style="width:8%;"><u>FY 2005</u></th> <th style="width:8%;"><u>FY 2006</u></th> <th style="width:8%;"><u>FY 2007</u></th> <th style="width:10%;"><u>Cost to Complete</u></th> <th style="width:10%;"><u>Total Cost</u></th> </tr> <tr> <td></td> <td align="center"><u>Actual</u></td> <td align="center"><u>Estimate</u></td> <td></td> <td></td> </tr> </thead> <tbody> <tr> <td>(U) Other APPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications) (BA-03, P-012)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="right">TBD</td> </tr> <tr> <td>(U) Related RDT&E PE 0605860F, RSLP (Space) (GPS Metric Tracking) (BA-06, R-097) PE 0604853F, EELV (GPS Metric Tracking) (BA-05, R-087)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> A Cost Plus Award Fee (CPAF) modification to the ICBM Prime Integration Contract with effort to begin in Jan 02 is planned.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th colspan="4" style="width:40%;"><u>FY 2000</u></th> <th colspan="4" style="width:40%;"><u>FY 2001</u></th> <th colspan="3" style="width:20%;"><u>FY 2002</u></th> </tr> <tr> <td></td> <td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> <td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> <td align="center">1</td><td align="center">2</td><td align="center">3</td><td align="center">4</td> </tr> </thead> <tbody> <tr> <td>(U) Milestone B</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td><td></td> </tr> <tr> <td>(U) Contract Mod for System Development & Demonstration (SDD) Award</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td align="center">X</td><td></td><td></td> </tr> <tr> <td>(U) -- PDR (TBD)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) -- CDR (TBD)</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>			(U) Other APPN											(U) Missile Procurement - AF (PE 0101213F, Minuteman Squadrons, MM III Modifications) (BA-03, P-012)										TBD	(U) Related RDT&E PE 0605860F, RSLP (Space) (GPS Metric Tracking) (BA-06, R-097) PE 0604853F, EELV (GPS Metric Tracking) (BA-05, R-087)												<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>				1	2	3	4	1	2	3	4	1	2	3	4	(U) Milestone B									X				(U) Contract Mod for System Development & Demonstration (SDD) Award										X			(U) -- PDR (TBD)													(U) -- CDR (TBD)																		
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to Complete</u>	<u>Total Cost</u>																																																																																																																																			
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Project 5007			Page 23 of 24 Pages				Exhibit R-2A (PE 0604851F)																																																																																																																																						

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001				
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604851F ICBM - EMD			PROJECT 5007			
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	Design/Development of Hardware									3,800	
(U)	Program Office Support									200	
(U)	Total									4,000	
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
	<u>Contractor or Government</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Product Development Organizations</u>										
	TRW	C/CPAF	Jan 02	TBD	TBD	0	0	0	3,800	Continuing	TBD
	<u>Support and Management Organizations</u>										
	Other	TBD	TBD	N/A	N/A	0	0	0	200	Continuing	TBD
	<u>Test and Evaluation Organizations</u>										
						<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Subtotals</u>										
	Subtotal Product Development					0	0	0	3,800	TBD	TBD
	Subtotal Support and Management					0	0	0	200	TBD	TBD
	Subtotal Test and Evaluation										
	Total Project					0	0	0	4,000	TBD	TBD

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001																	
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD					PROJECT 0004																
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost															
0004	Evolved Expendable Launch Vehicle	321,969	329,897	320,321	39,862	0	0	0	0	0	1,277,274															
	Quantity of RDT&E Articles	0	0	0	1	0	0	0	0	0	1															
<p>FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) A. Mission Description The Evolved Expendable Launch Vehicle (EELV) program is a space launch system development program. The mission of the EELV program is to partner with industry to develop a national launch capability that satisfies the government's National Launch Forecast (NLF) requirements and reduces the cost of space launch by at least 25%. EELV is being developed as a jointly funded commercial launch service, EELV is not a weapon system. The EELV system includes launch vehicles, a standard payload interface, support systems, mission integration (includes mission unique requirements), flight instrumentation and range interfaces, special studies (mission feasibility analysis, secondary payloads, dual manifesting, special flight instrumentation, loads analysis, etc.), post-flight data and analysis, mission assurance, training, technical support, facility modifications and upgrades at Vandenberg AFB and Cape Canaveral AFS (including Building 34705), and launch site and launch operations activities. EELV provides two families of commercial launch vehicles that will launch the government portion of the NLF currently serviced by Titan II, Delta II, Atlas II/III, and Titan IV via contractor provided commercial launch services. Evolved from current expendable launch systems or components thereof; EELV will support military, intelligence, and civil mission requirements.</p> <p>A new requirement for EELV Heavy Lift Vehicle (HLV) demonstration was added to the program in response to the Space Launch Broad Area Review (BAR) and the EELV Joint Assessment Team (JAT) to increase mission assurance and confidence in the HLV. HLV demo launch is scheduled for FY03. HLV demo cost is \$141M; FY00 \$12M (via FY00 OMNIBUS), FY01 \$48M (was included in the FY01 supplemental appropriation request), FY02 \$53M and FY03 \$28M in the current PB submission. HLV demo new start notification was included in the FY00 OMNIBUS.</p> <p>(U) FY 2000 (\$ in Thousands)</p> <table border="0"> <tr> <td>(U)</td> <td>\$287,875</td> <td>Continued system development/analysis</td> </tr> <tr> <td>(U)</td> <td>\$12,582</td> <td>Provided Systems Engineering</td> </tr> <tr> <td>(U)</td> <td>\$9,512</td> <td>Program management and other support costs</td> </tr> <tr> <td>(U)</td> <td>\$12,000</td> <td>Heavy Lift Vehicle (HLV) Demonstration</td> </tr> <tr> <td>(U)</td> <td>\$321,969</td> <td>Total</td> </tr> </table>												(U)	\$287,875	Continued system development/analysis	(U)	\$12,582	Provided Systems Engineering	(U)	\$9,512	Program management and other support costs	(U)	\$12,000	Heavy Lift Vehicle (HLV) Demonstration	(U)	\$321,969	Total
(U)	\$287,875	Continued system development/analysis																								
(U)	\$12,582	Provided Systems Engineering																								
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(U)	\$12,000	Heavy Lift Vehicle (HLV) Demonstration																								
(U)	\$321,969	Total																								
Project 0004		Page 1 of 6 Pages					Exhibit R-2 (PE 0604853F)																			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
05 - Engineering and Manufacturing Development	0604853F Evolved Expendable Launch Vehicle - EMD	0004		
(U) <u>A. Mission Description Continued</u>				
(U) <u>FY 2001 (\$ in Thousands)</u>				
(U) \$304,226	Continue system development/analysis			
(U) \$13,182	Provides Systems Engineering			
(U) \$12,489	Program management and other support costs			
(U) \$329,897	Total			
(U) <u>FY 2002 (\$ in Thousands)</u>				
(U) \$221,674	Continue system development/analysis			
(U) \$28,638	Provides Systems Engineering			
(U) \$17,009	Program management and other support costs			
(U) \$53,000	Heavy Lift Vehicle (HLV) demonstration			
(U) \$320,321	Total			
(U) <u>B. Budget Activity Justification</u>				
This program element is in Budget Activity 5, Engineering and Manufacturing Development, because it supports engineering and manufacturing development of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.				
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	317,964	332,952	244,021	1,172,554
(U) Appropriated Value	322,803	332,952		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-2,684	-2,332		
b. Small Business Innovative Research	-2,997			
c. Omnibus or Other Above Threshold Reprogram	8,000			
d. Below Threshold Reprogram	-1,891			
e. Rescissions	-1,262	-723		
(U) Adjustments to Budget Years Since FY 2001 PBR			76,300	
(U) Current Budget Submit/FY 2002 PBR	321,969	329,897	320,321	1,277,274

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

June 2001

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

05 - Engineering and Manufacturing Development

0604853F Evolved Expendable Launch Vehicle - EMD 0004

(U) **C. Program Change Summary (\$ in Thousands) Continued**

(U) **Significant Program Changes:**

The HLV demo is scheduled to launch approximately four months prior to the first operational government HLV launch. To support this effort the funding profile was developed as follows: FY00 - \$12M add (new start approval through FY00 Omnibus). FY01 - \$48M supplemental appropriations request . FY02 - \$53M added. FY03 - \$28M added. In addition to these HLV demo changes, FY 02 was increased in Systems Engineering by \$14M to meet the BAR/JAT recommendations for increased mission assurance manpower requirements. Additionally, \$8.5M was added in FY02 to cover GPS metric tracking.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) AF RDT&E										176,634
(U) Other APPN										
(U) NRO (Non-AF budget)*										95,100
(U) Missile Procurement, AF PE0305953F) (BA05,P-28)	68,127	280,397	98,007	569,081	358,791	657,453	812,078	706,887	6,210,300	9,761,121
(U) DARPA (Non-AF Budget) (PE 0603226E)**										9,845

* Total includes FY96 and FY97 funding

** Total includes FY94 funding.

(U) **E. Acquisition Strategy**

The EELV concept of a family of launch vehicles emphasizes commonality of hardware, infrastructure and economies of scale to enhance production, operations, and support efficiencies. Four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase in August 1995. The Air Force downselected to two contractors - Lockheed Martin Astronautics (LMA) and The Boeing Company (TBC - originally McDonnell Douglas) - for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase in December 1996. On 16 Oct 1998, two \$500M Other Transaction Agreements (OTA) were awarded to TBC and LMA for the development effort. The contractors will contribute additional funds of their own, as necessary, to bring their national launch operational capability on line. It is estimated that each contractor is investing approximately \$1B. Simultaneous with the award of the development effort, an Initial Launch Services (ILS) contract was awarded to Boeing for \$1.38B (19 missions) and an ILS contract was awarded to Lockheed Martin for \$649M (9 missions).

On 18 Sep 2000, a revised acquisition strategy was reviewed by the DEPSECDEF and signed by USD (AT&L). Under the revised strategy, only TBC will develop a Vandenberg AFB launch facility. LMA transferred two west coast DMSP missions to TBC and provided the government additional consideration. Furthermore, the

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 05 - Engineering and Manufacturing Development	PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD 0004	PROJECT 0004
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(U) **E. Acquisition Strategy Continued**
 program restructure included the procurement of a SECAF-directed heavy lift demonstration launch to increase confidence in the Delta IV Heavy Lift Vehicle (HLV) prior to the first operational government HLV launch.

The Development/ILS approach maintains competition throughout the life of the program, leverages the growing commercial launch market, caps the government's development costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NLF by at least 25% over existing systems. The EELV system will launch the government portion of the NLF through 2020.

(U) **F. Schedule Profile**

	<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>					
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Atlas V Tailored Critical Design Review	*											
(U) Delta IV Tailored Critical Design Review	*											
(U) Launch of Delta Mariner	*											
(U) Atlas V Wrap-up System Design Review				*								
(U) Atlas V Roll-Out					*							
(U) Boeing Pad 37 Dedication										X		
(U) Boeing RS-68 Engine Certification										X		
(U) 1st Commercial Delta IV Launch												X
(U) 1st Government Medium Launch												X
(U) 1st Commercial Atlas V Launch												X

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)						DATE June 2001					
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
05 - Engineering and Manufacturing Development				0604853F Evolved Expendable Launch Vehicle - EMD			0004				
(U) A. Project Cost Breakdown (\$ in Thousands)											
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>	
(U)	System development					287,875		304,226		221,674	
(U)	Systems Engineering					12,582		13,182		28,638	
(U)	Program management and other support costs					9,512		12,489		17,009	
(U)	HLV demonstration					12,000				53,000	
(U)	Total					321,969		329,897		320,321	
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)											
(U) Performing Organizations:											
	<u>Contractor or Government</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Performing Activity</u>	<u>Project Office</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Performing Activity</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>						
<u>Product Development Organizations</u>											
	Prime Contractor Boeing	OTA	Oct 98	641,000	641,000	122,143	155,919	184,086	131,782	33,931	627,861
	Prime Contractor Lockheed Martin	OTA	Oct 98	641,000	641,000	121,930	143,956	120,140	142,892	5,931	534,849
<u>Support and Management Organizations</u>											
	SPO Mission Spt	Various	Various	N/A	N/A	6,844	7,276	8,015	11,202	0	33,337
	FFRDC	SS/CPAF	Annual	N/A	N/A	12,812	12,582	13,182	28,638	0	67,214
	Other Cntr Spt	Various	Various	N/A	N/A	1,496	2,236	4,474	5,807	0	14,013
<u>Test and Evaluation Organizations</u>											
	None										
(U) Government Furnished Property:											
	<u>Item</u>	<u>Contract Method/Type</u>	<u>Award or Obligation</u>	<u>Delivery</u>		<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
	<u>Description</u>	<u>or Funding Vehicle</u>	<u>Date</u>	<u>Date</u>							

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)				DATE June 2001					
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development				PE NUMBER AND TITLE 0604853F Evolved Expendable Launch Vehicle - EMD 0004				PROJECT 0004	
(U) Government Furnished Property Continued:									
	<u>Contract</u>								
	<u>Method/Type</u>	<u>Award or</u>							
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>									
None									
<u>Support and Management Property</u>									
None									
<u>Test and Evaluation Property</u>									
None									
				<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>				<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development				244,073	299,875	304,226	274,674	39,862	1,162,710
Subtotal Support and Management				21,152	22,094	25,671	45,647	0	114,564
Subtotal Test and Evaluation									
Total Project				265,225	321,969	329,897	320,321	39,862	1,277,274

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE 0605011F RDT&E For Aging Aircraft					PROJECT 4685	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4685	Aging Aircraft	4,870	25,468	20,113	25,164	30,225	30,861	31,509	32,176	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>Note: FY 2003-FY 2007 budget numbers do not reflect the DoD strategy review results.</p> <p>(U) <u>A. Mission Description</u> This program extends the service life, controls the rapidly rising sustainment costs, and retains the operational capability of the aging aircraft fleet. Using business case analyses, cross-cutting opportunities to reduce total ownership costs and improve productivity, reliability, availability, and maintainability (PRAM) are identified. The program develops tools to facilitate the sharing of aging aircraft information, knowledge, technology, and solutions among the Air Logistics Centers, Product Centers, System Program Offices, other Services and government agencies, and industry. The program provides senior Air Force decision makers with a common, comprehensive understanding of program areas such as corrosion, wiring, etc. The program also analyzes and recommends changes to existing sustainment processes such as field and depot repair processes.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$132 Continued corrosion maintenance improvements to develop abatement processes and temporary repairs. Provided a wider range of repair options, reducing the cost and manhours associated with corrosion maintenance. Continued development and integration of software and analytical tools to support corrosion management, such as environmental exposure models and corrosion damage analyses, to allow depot engineers to better anticipate corrosion-related workload for future depot maintenance cycles.</p> <p>(U) \$2,469 Continued work on improved non-destructive inspection (NDI) techniques that reduce the time required to detect flaws and damage (e.g., fatigue cracking, corrosion, disbonds, and trapped moisture) and/or enable early damage detection, allowing for less costly repairs. Efforts included the development of a NDI technique that detects small cracks in deep, multi-layer structures without removing fasteners, reducing inspection time as well as eliminating the potential for further damage by removing fasteners.</p> <p>(U) \$2,139 Continued work on technologies to maintain the structural integrity of aging weapon systems, ensuring continued flight safety. Efforts included development of viable maintenance procedures to address the delamination of aging integral fuel tank coatings, which offers improved corrosion protection and eliminates the need to replace wing skins.</p> <p>(U) \$130 Initiated studies to identify policies and processes that need to be developed or refined to better address aging avionics/electronics issues such as parts obsolescence and diminishing manufacturing sources.</p> <p>(U) \$4,870 Total</p>											
Project 4685		Page 1 of 6 Pages					Exhibit R-2 (PE 0605011F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
05 - Engineering and Manufacturing Development	0605011F RDT&E For Aging Aircraft	4685
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$166	Continue corrosion maintenance improvements. Develop abatement processes and temporary repairs. Provide a wider range of repair options. Reduce the cost and man-hours associated with corrosion maintenance. Continue development and integration of software and analytical tools to support corrosion management such as environmental exposure models and corrosion damage analyses that will better allow engineers to anticipate workload.	
(U) \$6,211	Continue work on improved non-destructive inspection (NDI) techniques. Reduce the time required to detect flaws and damage (e.g., fatigue cracking, corrosion, disbonds, and trapped moisture). Enable early damage detection, thus allowing for less costly repairs. Develop NDI techniques to detect cracks without removing fasteners, reducing inspection time as well as eliminating the potential for further damage by removing fasteners. Expand the application of ultrasonic inspection techniques to detect fatigue cracks in internal wing structure from the outside of the aircraft, which will eliminate fuel tank entry requirements and potential damaging rivet removal.	
(U) \$7,415	Continue work on technologies to maintain the structural integrity of aging weapon systems, ensuring continued flight safety. Develop viable procedures to correct the delamination of aging integral fuel tank coatings, which offer improved corrosion protection and eliminate the need to replace wing skins.	
(U) \$176	Continue studies to identify policies and processes that need to be developed or refined to help resolve aging avionics/electronics issues such as parts obsolescence and diminishing manufacturing sources. Initiate development of integrated avionics/electronics change management plans for common solutions across multiple platforms.	
(U) \$10,000	Start and complete engineering tasks associated with Aging Landing Gear Life Extension program.	
(U) \$1,500	Start and complete Aging Aircraft efforts related to Viable Combat Avionics.	
(U) \$25,468	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$6,230	Continue corrosion maintenance improvements. Develop corrosion abatement techniques, procedures, and temporary repairs. Expand the range of available repair technologies. Reduce the cost and man-hours associated with corrosion maintenance actions. Continue development and integration of software and analytical tools to support corrosion management workload prediction (e.g., environmental exposure models, corrosion damage analyses).	
(U) \$1,100	Continue work on improved NDI techniques. Shorten detection time for flaws and damage due to fatigue cracking, corrosion, composite material delaminations, and trapped moisture. Sponsor technology advancements to enable early damage detection, thus allowing for less costly repairs over the weapon system life cycle. Develop non-destructive inspection (NDI) techniques to detect cracks without removing fasteners to reduce inspection time and eliminate the potential for further damage by removing fasteners. Broaden the application of ultrasonic inspection techniques	
Project 4685	Page 2 of 6 Pages	Exhibit R-2 (PE 0605011F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
05 - Engineering and Manufacturing Development	0605011F RDT&E For Aging Aircraft	4685			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands) Continued</u>					
		to detect fatigue cracks in internal wing structure from the outside of the aircraft to eliminate fuel tank entry requirements and potential damage caused by rivet removal.			
(U) \$4,800		Continue work on technologies to maintain the structural integrity of aging weapon systems to ensure continued flight safety. Develop viable procedures to correct the delamination of aging integral fuel tank coatings for improved corrosion protection and elimination of wing skin replacements.			
(U) \$1,930		Conduct analyses on aging aircraft problems to drive affordable modernization and sustainment solutions. Leverage existing knowledge of aging aircraft structures, avionics, and propulsion into business case analyses and related efforts to identify opportunities to reduce total ownership costs.			
(U) \$3,158		Develop cross-cutting aging aircraft system solutions (e.g., an NDI corrosion assessment tool for accurate structural health assessments). Develop techniques to incorporate high strength, corrosion resistant alloys into legacy airframes. Study aging wiring in the F-16 and C-17 fleet. Develop techniques for predicting aging wiring problems. Improve repair procedures to maintain the integrity of aging integral fuel tank coating materials.			
(U) \$2,895		Develop an information/knowledge portal tool to share aging aircraft technology and solutions across the aeronautical community. Identify existing databases which contain aging aircraft information. Connect existing databases to a single web portal. Develop web-based data mining views that turn the raw data into information to facilitate strategic planning and trend analysis for reducing total ownership costs.			
(U) \$20,113		Total			
(U) <u>B. Budget Activity Justification</u>					
This program is in Budget Activity 5, Engineering and Manufacturing Development, because projects/capabilities will be developed in this program, then made available for procurement by already operational systems.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)		4,856	14,204	28,212	
(U) Appropriated Value		4,889	25,704		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions					
b. Small Business Innovative Research					
c. Omnibus or Other Above Threshold Reprogram					
Project 4685					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001							
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT							
05 - Engineering and Manufacturing Development					0605011F RDT&E For Aging Aircraft					4685							
(U) C. Program Change Summary (\$ in Thousands) Continued																	
					<u>FY 2000</u>					<u>FY 2001</u>			<u>FY 2002</u>	<u>Total Cost</u>			
	d. Below Threshold Reprogram																
	e. Rescissions					-19				-236							
(U)	Adjustments to Budget Years Since FY 2001 PBR												-8,099				
(U)	Current Budget Submit/FY 2002 PBR					4,870				25,468			20,113	TBD			
(U)	<u>Significant Program Changes:</u>																
	Program funding was reduced due to higher priority Air Force requirements resulting in approximately 9 projects being deferred to latter years.																
(U) D. Other Program Funding Summary (\$ in Thousands)																	
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>		<u>Cost to</u>		<u>Total Cost</u>				
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>		<u>Complete</u>						
(U)	AF RDT&E																
(U)	Other APPN																
	(U) Related Activities:																
	(U) PE 0708026F, Productivity/Reliability/Availability/Maintainability.																
(U) E. Acquisition Strategy																	
	Funding may be executed internally within the Aging Aircraft SPO via full and open competition or released to other organizations for projects for which they are the Office of Primary Responsibility (OPR). The OPRs will determine the most appropriate contract vehicle, Design Engineering Program (DEP) contract or full and open competition, to accomplish the project.																
(U) F. Schedule Profile																	
					<u>FY 2000</u>					<u>FY 2001</u>			<u>FY 2002</u>				
					1	2	3	4		1	2	3	4	1	2	3	4
(U)	Screening for Corrosion and Maintenance Improvement Projects						X					X				X	
(U)	Request For Proposal Release						X					X				X	
(U)	Contract Awards				*	*	*			*	*	*		X	X	X	
	Note: 1Q and 2Q contract awards are from prior year funds																
Project 4685					Page 4 of 6 Pages					Exhibit R-2 (PE 0605011F)							

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT		
05 - Engineering and Manufacturing Development					0605011F RDT&E For Aging Aircraft			4685		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Corrosion Prevention and Control Techniques					132		166		6,230
(U)	Improved Non-Destructive Inspection Capabilities					2,469		6,211		1,100
(U)	Technologies to Enhance Structural Integrity					2,139		7,415		4,800
(U)	Aging Avionics/Electronics Approaches					130		176		0
(U)	Aging Landing Gear Life Extension							10,000		0
(U)	Viable Combat Avionics							1,500		0
(U)	Aging Aircraft Analysis									1,930
(U)	Cross-Cutting Aging Aircraft Technology									3,158
(U)	Aging Aircraft Knowledge Management Tools									2,895
(U)	Total					4,870		25,468		20,113
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or</u>	<u>Contract</u>									
<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>						
<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Organizations</u>										
ARINC/Boeing	T&M	Mar 01	N/A	N/A	0	520	487	0	0	1,007
Boeing	T&M	Apr 01	N/A	N/A	0	30	770	1,100	0	1,900
Lockheed Martin	T&M	Feb 01	N/A	N/A	0	565	467	0	0	1,032
Southwest Research	T&M	Mar 01	N/A	N/A	0	0	350	250	1,190	1,790
SAIC/Boeing	FFP	Mar 01	N/A	N/A	0	300	600	300	0	1,200
SAIC	T&M	Mar 01	N/A	N/A	0	300	980	300	300	1,880
UDRI/S&K Tech	TBD	Mar 01	N/A	N/A	0	750	1,380	0	0	2,130
UDRI	T&M	Mar 01	N/A	N/A	0	80	1,500	1,500	0	3,080
UDRI/Anteon	T&M	Apr 01	N/A	N/A	0	150	450	0	0	600
UDRI/NASA	T&M	Mar 01	N/A	N/A	0	160	1,330	1,190	0	2,680
Project 4685					Page 5 of 6 Pages			Exhibit R-3 (PE 0605011F)		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
BUDGET ACTIVITY										June 2001
05 - Engineering and Manufacturing Development					PE NUMBER AND TITLE					PROJECT
					0605011F RDT&E For Aging Aircraft					4685
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
General Atomics	TBD	TBD	N/A	N/A	0	0	10,000	0	0	10,000
Illinois Institute of Tech	T&M	Jan 01	N/A	N/A	0	0	1,500	0	0	1,500
Numerous	Various	Various	N/A	N/A	0	2,015	5,654	15,473	Continuing	TBD
<u>Support and Management Organizations</u>										
In House										
<u>Test and Evaluation Organizations</u>										
(U) Government Furnished Property:										
<u>Contract</u>										
	<u>Method/Type</u>	<u>Award or</u>								
<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
None										
<u>Support and Management Property</u>										
None										
<u>Test and Evaluation Property</u>										
None										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					0	4,870	25,468	20,113	TBD	TBD
Subtotal Support and Management										
Subtotal Test and Evaluation										
Total Project					0	4,870	25,468	20,113	TBD	TBD

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604256F Threat Simulator Development						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	29,759	34,466	38,153	40,198	42,931	43,824	44,736	45,682	Continuing	TBD
2907 Electronic Combat Intel Support	1,701	1,950	1,893	1,926	2,049	2,071	2,114	2,159	Continuing	TBD
3321 Electronic Warfare Ground Test Resources	25,713	26,442	29,190	31,037	33,520	34,189	34,899	35,637	Continuing	TBD
7500 Foreign Material Acquisition/Exploitation	2,345	6,074	7,070	7,235	7,362	7,564	7,723	7,886	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-07 budget numbers do not reflect the DoD strategic review results

(U) **A. Mission Description**
 This PE provides funding for the elements necessary to support the AF Electronic Warfare (EW) Test Process. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of AF EW and avionics systems. Each capability or facility improvement is pursued in concert with the others so as to avoid duplicate capabilities while at the same time producing the proper mix of test resources needed to support the AF EW Test Process. This PE provides funding for the management and technical oversight of implementation activities, development and improvement of digital EW models, measurement facilities operation and improvements, hardware in the loop test facilities operation and improvements, installed system test facility improvements, and development and improvement of open air threat simulators for flight testing. This PE also provides funding for planning, management, budgetary, and technical support to the Air Force for corporate-level implementation of the Electronic Warfare (EW) Test Process and for improvement and modernization (I&M) and application of the test and evaluation (T&E) infrastructure. Support includes requirements definition and analysis, project planning, programming and budgeting, technical oversight, and application of T&E facility I&M. Products include studies, analyses, and related documentation. This PE provides funding to support the acquisition and exploitation efforts of the Foreign Materiel Program, as well as to support EW intelligence efforts.

(U) **B. Budget Activity Justification**
 This Program Element is in Budget Activity 6, Management Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE		
06 - Management and Support		June 2001		
BUDGET ACTIVITY	PE NUMBER AND TITLE			
06 - Management and Support	0604256F Threat Simulator Development			
(U) <u>C. Program Change Summary (\$ in Thousands)</u>				
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)	32,391	34,785	37,990	
(U) Appropriated Value	32,391	34,785		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-234	-244		
b. Small Business Innovative Research	-914			
c. Omnibus or Other Above Threshold Reprogram	-1,157			
d. Below Threshold Reprogram	-200			
e. Rescissions	-127	-75		
(U) Adjustments to Budget Years Since FY 2001 PBR			163	
(U) Current Budget Submit/FY 2002 PBR	29,759	34,466	38,153	TBD
(U) <u>Significant Program Changes:</u>				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support					PE NUMBER AND TITLE 0604256F Threat Simulator Development					PROJECT 2907	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2907	Electronic Combat Intel Support	1,701	1,950	1,893	1,926	2,049	2,071	2,114	2,159	Continuing	TBD
<p>FY03-07 budget numbers do not reflect the DoD strategic review results</p> <p>(U) <u>A. Mission Description</u> This project provides funding to support Foreign Materiel Operational Test and Evaluation (FMOT&E), which ensures the ability of operational commands to test and develop effective Electronic Attack/Electronic Protection (EA/EP) techniques and tactics. Funds are required for: deployment of blue systems to test facilities, travel for personnel to the test sites to evaluate and validate test results real-time, range and laboratory costs; costs for instrumentation of blue systems; and contracted engineering support for the conduct of tests and subsequent reporting. Funding for this program is required to prevent future aircraft losses due to improper and inaccurate aircrew tactics (e.g., lack of evasive action or proper tactics training to avoid missile attack).</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$1,368 Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished. (U) \$279 Funds transport aircraft testing for foreign material operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished. (U) \$54 Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished. (U) \$1,701 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$1,540 Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished. (U) \$340 Funds transport aircraft testing for foreign material operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished. (U) \$70 Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished. (U) \$1,950 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR=-268K, SBIR=-1258K, CGR RESC=-76K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown. These numbers account for the adjustments for the total Program Element,</p>											
Project 2907			Page 3 of 11 Pages				Exhibit R-2A (PE 0604256F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001																																																																																																
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604256F Threat Simulator Development				PROJECT 2907																																																																																															
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u> not just this BPAC.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$1,496 Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.</p> <p>(U) \$322 Funds transport aircraft testing for foreign material operational exploitation. Extensive evaluations and reporting of blue system effectiveness to be accomplished.</p> <p>(U) \$75 Funds classified operational assessments for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.</p> <p>(U) \$1,893 Total</p> <p>(U) <u>B. Project Change Summary</u> None</p> <p>(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>FY 2000</u></th> <th style="text-align: center;"><u>FY 2001</u></th> <th style="text-align: center;"><u>FY 2002</u></th> <th style="text-align: center;"><u>FY 2003</u></th> <th style="text-align: center;"><u>FY 2004</u></th> <th style="text-align: center;"><u>FY 2005</u></th> <th style="text-align: center;"><u>FY 2006</u></th> <th style="text-align: center;"><u>FY 2007</u></th> <th style="text-align: center;"><u>Cost to</u></th> <th style="text-align: center;"><u>Total Cost</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Actual</u></th> <th style="text-align: center;"><u>Estimate</u></th> <th style="text-align: center;"><u>Complete</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) Other APPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td>(U) None</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> <p>(U) <u>D. Acquisition Strategy</u> Not applicable.</p> <p>(U) <u>E. Schedule Profile</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="4" style="text-align: center;"><u>FY 2000</u></th> <th colspan="4" style="text-align: center;"><u>FY 2001</u></th> <th colspan="4" style="text-align: center;"><u>FY 2002</u></th> </tr> <tr> <th></th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> <th style="text-align: center;">1</th> <th style="text-align: center;">2</th> <th style="text-align: center;">3</th> <th style="text-align: center;">4</th> </tr> </thead> <tbody> <tr> <td>(U) Not applicable. Discrete tasks vary depending on availability of Foreign Material Acquisition (FMA) hardware and exploitation schedules. The annual budget is based on supporting up to eight opportunities for operational units to conduct quick look assessments of available FMA.</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </tbody> </table>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E											(U) Other APPN											(U) None												<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>					1	2	3	4	1	2	3	4	1	2	3	4	(U) Not applicable. Discrete tasks vary depending on availability of Foreign Material Acquisition (FMA) hardware and exploitation schedules. The annual budget is based on supporting up to eight opportunities for operational units to conduct quick look assessments of available FMA.																		
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>																																																																																													
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Project 2907				Page 4 of 11 Pages				Exhibit R-2A (PE 0604256F)																																																																																															

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604256F Threat Simulator Development					PROJECT 3321		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
3321	Electronic Warfare Ground Test Resources	25,713	26,442	29,190	31,037	33,520	34,189	34,899	35,637	Continuing	TBD
FY03-07 budget numbers do not reflect the DoD strategic review results											
<p>(U) <u>A. Mission Description</u></p> <p>The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process. To manage program risk effectively throughout the weapons system acquisition process, and conduct test and evaluation (T&E) effectively and efficiently, a spectrum of T&E capabilities from modeling and simulation through open-air ranges is required. The EW Test Process Support task provides for investment management, coordinated technical oversight, and application of EW T&E facilities, including studies, analyses, and related documentation. The Electronic Warfare T&E Modeling & Simulation (EW T&E M&S) program will lead correlation, verification and validation activities of integrated simulations of validated models across the EW test facilities using the Silver Bullet measurement capability. The National Radar Cross Section (RCS) Test Facility - NRTF (formerly Radar Target Scatter (RATSCAT)) upgrade project provides improvements to the NRTF at Holloman AFB, NM, to support radar cross section (RCS) measurement requirements of DoD customers, with either conventional or stealth systems. The Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Digital Integrated Air Defense System (DIADS), provide the ability to realistically evaluate hardware components and simulated weapon systems against manned hardware threat representations throughout the acquisition process. AFEWES provides: simulations of advanced Infrared (IR) & Radio Frequency (RF) Surface-to-Air Missiles (SAMs) and Air-to-Air Missiles (AAMs); IR/ Ultra-violet (UV) & RF missile warning; end-to-end testing of the missile warning/IR countermeasure function; and integration of actual threat hardware and ground clutter into advanced threat RF and IR missile simulations. DIADS provides algorithm based enemy command and control (C2) capabilities plus early warning radar detection and limited ground control intercept features and also allows man-in-the-loop interaction for the enemy C2 positions. The Electronic Combat Integrated Test (ECIT) project upgrades the AF Hardware-In-The-Loop (HITL), System Integration Labs (SILs), and Installed System Test Facility (ISTF) at Edwards AFB, CA. The HITL and SILs at Edwards allow for the stimulation of real aircraft avionics with the benefit of a laboratory environment. The AF ISTF consists of a large, instrumented, anechoic chamber which provides for evaluation of EW systems when installed on its host aircraft, both prior to and throughout the flight test program. The goal of the ECIT upgrade is to integrate coherent EW threat stimulators into the ground test facilities at Edwards and modernize instrumentation/test operation capabilities. In FY 99 ECIT began a 3-year effort to fund the purchase of EW equipment in support of the F-22's Integrated Hardware-In-The-Loop Avionics Test (IHAT) capability. The IHAT capability is being transferred to Edwards AFB, CA from Marietta, GA. In FY 02, the Air Warfare Mission Simulator (AWMS) program will begin development of an electronic warfare capability with high fidelity reconfigurable cockpits. This program will also provide the capability to link to high fidelity cockpits into the information battlespace via High Level Architecture (HLA).</p>											
Project 3321			Page 5 of 11 Pages				Exhibit R-2A (PE 0604256F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0604256F Threat Simulator Development	PROJECT 3321
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$883	EC Test Process Support. Conducted requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provided systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including improvement and modernization (I&M) of the EW test infrastructure.	
(U) \$3,238	EW Test and Evaluation Modeling and Simulation (EW T&E M&S). Continued development of verification and validation process for integrated simulations configured to support development and operational testing. Continued correlation process development and correlation implementation between EW test facilities being supported by Silver Bullet.	
(U) \$1,840	NRTF Upgrades. Completed development on Radar Cross Section (RCS) Advanced Measurement System (RAMS) Pylon. Completed industry partnership efforts with first major EW supplier (Boeing).	
(U) \$3,581	AFEWES. Continued operation in support of DoD and non-DoD test customers and defined requirements for upgrades to the IR laboratory. Continued development of Advanced Simulator modification (SAM-C), the Missile Warning System Lab, and reached hardware IOC on the SAM-E simulator. Began development of capability to produce semi-active missile miss distance results using National Test and Training Range flight test data. Began integration of second IR air-to-air missile and verification & validation effort on the threat simulators.	
(U) \$2,598	DIADS. Continued providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system. Continued verification and validation efforts required for the IOC of the DIADS baseline. Continued development of external linking. Linked to external Blue C4ISR simulations, and generated Man-In-the Loop (MITL) Red IADS for the High Level Architecture (HLA) Federation as part of the Virtual Strike Warfare Environment (VSWE) Exercise 7, conducted by the Joint Strike Fighter (JSF) program.	
(U) \$13,573	ECIT. Continued Infrastructure and Generic Test Capability (I>C) that provides RF stimulation capability and infrastructure support for the Central Test and Evaluation Improvement Program (CTEIP)-funded Generic Radar Target Generator (GRTG), Infrared Sensor Stimulator (IRSS), and Communications - Navigation - Identification (CNI) simulator, to support F-22 and other advanced weapon system requirements. Continued purchase and integration of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability.	
(U) \$25,713	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$890	EC Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including improvement and modernization (I&M) of the EW test infrastructure.	
(U) \$3,885	EW Test and Evaluation Modeling and Simulation (EW T&E MS). Continue development of verification and validation process for integrated simulations configured to support development and operational testing. Continue correlation process development and correlation	

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604256F Threat Simulator Development	3321
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
	implementation between EW test facilities being supported by Silver Bullet. Begin study of requirements to migrate realistic sensor information from the EC environment into cockpit simulators in support of the Air Warfare Mission Simulator (AWMS) program.	
(U) \$1,680	NRTF Upgrades. Enhance efficiency of operations and accuracy of measurements. Expand partnerships with major industry EW suppliers and complete storage facility modifications.	
(U) \$6,040	AFEWES. Continue operation in support of DoD and non-DoD test customers to include initiation of upgrades to the IR laboratory and continue validation & verification (V&V) effort on all threat simulators. Begin development of SAM-D semi-active simulator. Complete development of Advanced Simulator modification (SAM-C), and continue development of capability to produce semi-active missile miss distance results using National Test and Training Range flight test data. Complete integration of second IR air-to-air missile and development of Missile Warning System Lab. Complete first iteration of IR Lab and SAM-B V&V.	
(U) \$3,420	DIADS. Continue providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system by updating the IADS scenario with current intel data. Continue verification and validation efforts and development of external linking and Blue IADS capabilities, in support of AF, Army, Navy and non-DoD test customers. Complete IOC requirements.	
(U) \$10,527	ECIT. Continue Infrastructure and Generic Test Capability (I>C) that provides RF stimulation capability and infrastructure support for the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Stimulator (IRSS), and Communications-Navigation-Identification (CNI) simulator, to support F-22 and other advanced weapon system requirements and to support IOC early in FY02. Complete purchase of EW equipment in support of the F-22's Integrated Hardware-in-the-loop Avionics Test (IHAT) capability.	
(U) \$26,442	Total	
	The following net transactions are not reflected in the FY01 program total: BTR=-268K, SBIR=-1258K, CGR RESC=-76K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown. These numbers account for the adjustments for the total Program Element, not just this BPAC.	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$916	EC Test Process Support. Conduct requirements analyses and other studies in support of Air Force investments in EW test infrastructure. Provide systems engineering/technical assistance (SETA) support for Air Force implementation of the EW Test Process, including improvement and modernization (I&M) of the EW test infrastructure.	
(U) \$3,303	EW Test and Evaluation Modeling and Simulation (EW T&E M&S). Continue development and deployment of the Verification and Validation	
Project 3321	Page 7 of 11 Pages	Exhibit R-2A (PE 0604256F)

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
06 - Management and Support				0604256F Threat Simulator Development			3321				
(U) A. Mission Description Continued											
(U) FY 2002 (\$ in Thousands) Continued											
				(V&V) process for scalable integration with simulations to support development and operational testing. Continue to integrate correlation process development and correlation implementation between EW T&E and training facilities being supported by Silver Bullet.							
(U)	\$2,065			NRTF Upgrades. Begin and complete planned Low-Frequency Bistatic measurement capability efforts.							
(U)	\$5,260			AFEWES. Continue operation in support of DoD and non-DoD test customers to include upgrades to the IR laboratory, enhancements of the Missile Warning System Lab, and validation & verification effort on all threat simulators. Continue development of SAM-G and SAM-E semi-active simulators, and continue development of SAM-D. Continue development of capability to produce semi-active missile miss distance results using National Test and Training Range flight test data. Begin development of SAM-F and start transition of IR flyout models to PC-based software. Complete first iteration of SAM-A and SAM-C V&V.							
(U)	\$5,070			DIADS. Continue providing mission level simulation for evaluating the survivability of aircraft penetrating an enemy air defense system by updating the IADS scenario with current intel data. Continue verification and validation efforts to support DIADS customers. Integrate DIADS with other Avionics Test and Integration Complex (ATIC) components.							
(U)	\$10,612			ECIT. Complete IOC and FOC of Infrastructure and Generic Test Capability (I>C) that provides RF stimulation capability and infrastructure support for the CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Stimulator (IRSS), and Communications - Navigation - Identification (CNI) simulator, to support F-22 and other advanced weapon system requirements. Complete requirement definition and acquisition planning to fully integrate the suite of simulators/stimulators into a coherent multi-spectral test environment to be accomplished in future EW programs.							
(U)	\$1,964			AWMS. Complete requirements study started under the EW T&E M&S project and develop acquisition strategy to provide realistic EC sensor information into cockpit simulators. Begin development of two high fidelity cockpit simulators.							
(U)	\$29,190			Total							
(U) B. Project Change Summary											
(U) C. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E										
(U)	Other APPN										
(U)	Related RDT&E:										
(U)	PE 0604759F, Major T&E										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604256F Threat Simulator Development				PROJECT 3321			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
Investment											
(U) PE 0604940D, Central T&E											
Investment Program											
(U) D. Acquisition Strategy											
Contracts funded from this program are predominately awarded on the basis of full and open competition.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U)											
This BPAC contains multiple schedule profiles which are available upon request.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support					PE NUMBER AND TITLE 0604256F Threat Simulator Development					PROJECT 7500	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
7500 Foreign Material Acquisition/Exploitation	2,345	6,074	7,070	7,235	7,362	7,564	7,723	7,886	Continuing	TBD	
FY03-07 budget numbers do not reflect the DoD strategic review results											
<p>(U) <u>A. Mission Description</u> This project is established for the specific purpose of supporting the USAF requirements for the Foreign Materiel Program through the acquisition and exploitation of foreign materiel. Items considered for these Foreign Materiel Acquisition and Exploitation (FMA&E) funds are included in the prioritized Air Force Foreign Materiel Acquisition (FMA) list established each year. Each MAJCOM prepares and approves a Foreign Materiel - Mission Need Statement for each requirement. Annually, the MAJCOM commanders establish a list of their top 20 requirements. The MAJCOM's requirements lists are then integrated into an Air Force requirement list. Each MAJCOM then approves the AF list and requirements, and final validation comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions. The list is classified secret. The USAF is tasked by OSD to be the DoD Executive Agent for all threat aircraft, air-to-air missiles, and early warning radars. As the Executive Agent, the AF is tasked to acquire, exploit and provide data to all DoD components.</p>											
<p>(U) <u>FY 2000 (\$ in Thousands)</u></p>											
<p>(U) \$1,759 Funds the acquisition of Foreign Materials IAW the prioritized Air Force Foreign Material Acquisition list; subject to assets availability.</p>											
<p>(U) \$348 Funds the exploitation of acquired Foreign Materials IAW prioritized lists and specific exploitation plans.</p>											
<p>(U) \$238 Funds the operations and maintenance of the specialized Foreign Material assets.</p>											
<p>(U) \$2,345 Total</p>											
<p>(U) <u>FY 2001 (\$ in Thousands)</u></p>											
<p>(U) \$2,930 Funds the acquisition of Foreign Materials IAW the prioritized Air Force Foreign Material Acquisition list; subject to assets availability.</p>											
<p>(U) \$2,572 Funds the exploitation of acquired Foreign Materials IAW prioritized lists and specific exploitation plans.</p>											
<p>(U) \$572 Funds the operations and maintenance of the specialized Foreign Material assets.</p>											
<p>(U) \$6,074 Total</p>											
<p>The following net transactions are not reflected in the FY01 program total: BTR=-268K, SBIR=-1258K, CGR RESC=-76K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown. These numbers account for the adjustments for the total Program Element, not just this BPAC.</p>											
Project 7500			Page 10 of 11 Pages				Exhibit R-2A (PE 0604256F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604759F Major T&E Investment					PROJECT 4597		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4597	Air Force Test Investments	54,072	67,631	49,857	50,230	60,792	70,673	72,137	75,335	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-07 budget numbers do not reflect the DoD strategic review results

(U) **A. Mission Description**

This program element provides planning, improvements, and modernization for test capabilities at four Air Force test organizations: 46 Test Wing of the Air Armament Center (AAC), Arnold Engineering Development Center (AEDC), and Air Force Flight Test Center (AFFTC). The purpose is to help test organizations keep pace with emerging weapon system technologies. For example, advances in missile seeker technology and capabilities drive the requirement for improvement in missile seeker test capabilities such as the Guided Weapon Evaluation Facility (GWEF), Seeker T&E, and Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) projects; advances in the Global Positioning System (GPS), providing greater time-space-position accuracy, will be integrated into the ranges at Eglin and Edwards Air Force Bases; and advances in computer capabilities, which will enhance efficiencies in data collection, analysis, and distribution, will be exploited in the Data Acquisition and Processing System (DAPS) and Computer Aided Modernization Project (CMP) projects. Test investment activities are also funded at the Joint Program Office (JPO) for Test and Evaluation (T&E) and for the Technology Insertion & Risk Reduction (TIRR), formerly the Test Technology Development (TTD), Program. The TIRR program will provide funds to initiate studies of new technologies and test methodologies to determine their feasibility for future T&E investment. The intent is to reduce the cost and risk associated with new technologies and methodologies using short term (1-3 years) limited funding studies prior to investing in larger projects.

The fluctuations in the funding at these locations are due to changing priorities in the improvement and modernization requirements as defined through the AF Test Investment Planning & Programming Process. Also, all projects have been reviewed through the tri-Service Reliance effort (to communicate AF efforts to the other Services and avoid unwarranted duplication of effort) and are documented in the Test Capability Master Plans. Further, each project has its own planning, development, equipment acquisition/facility construction, equipment installation, and checkout phases which often requires significant differences in funding from one year to the next. As such, the changes in funding from year to year do not necessarily indicate program growth but rather a planned phasing of improvement and modernization efforts. The test capabilities at these locations enable testing through all phases of weapon system acquisition from system concept exploration through component and full scale integrated weapon system testing to operational testing. These test organizations have over \$10 billion worth of unique test facilities/capabilities. They are a national asset operated and maintained by the Air Force for DoD test and evaluation missions, but they are available to others having a requirement for their unique capabilities.

46 TW, located at Eglin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments,

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE June 2001

BUDGET ACTIVITY
06 - Management and Support

PE NUMBER AND TITLE
0604759F Major T&E Investment

PROJECT
4597

(U) **A. Mission Description Continued**

Command, Control, Communications, Computers and Intelligence (C4I) systems, and target acquisition and weapon delivery systems; navigation systems; provides a climatic simulation capability; and determines target/test item spectral signatures. The Guided Weapon Evaluation Facility (GWEF) provides a full spectrum, multifunctional seeker/sensor laboratory test capability for all guided weapons. Common Airborne Instrumentation System (CAIS) Integration and Advanced Airborne Instrumentation Integration (AAII) provide standardized airborne test instrumentation to enhance interoperability and commonality. Global Positioning System (GPS) Range Systems will provide a major improvement for Time-Space-Position-Information (TSPI) at all Major Range and Test Facility Bases (MRTFB) and specifically at the Eglin Ranges for munitions testing. C4I Test Capabilities Upgrade and C4I Advanced Simulation and Test Environment (CASTE) will provide connectivity to existing capabilities and add needed networks and hardware to develop a C4I test bed. Link-16 support will provide a host platform simulator for C4I testing. The Preflight Integration of Munitions and Electronic Systems (PRIMES) facility conducts preflight test and evaluation of total integrated weapon systems in a secure anechoic chamber. The Armament Systems Test Environment (ASTE) Range Systems effort upgrades instrumentation of the major data collection systems supporting open air testing. Mission Control/Data Analysis and Test Control and Visualization projects provide for real-time central mission control and analysis. Multispectral Missile Engagement Hardware-in-the-Loop (HITL) Test project provides a capability to support multiple and wide field-of-view missile engagements incorporating multispectral stimulators. The Santa Rosa Island Reconstitution effort will provide hardware-in-the-loop equipment for three focus sites to support armament/munitions and C4I testing. Seeker T&E will upgrade unique Electro-Optical/Infrared/Millimeter Wave (EO/IR/MMW) field measurement capabilities to support tri-Service smart weapons development. Scene Characterization and Reconstruction for Advanced Munitions (SCRAM) will measure, characterize, and reconstruct high fidelity multispectral target scenes that will be integrated into the GWEF. Weapon Integration/Compatibility Support (WICS) will provide upgrades to support post EMD F-22 weapons integration and certification. Climatic Lab Upgrades will provide upgrades to instrumentation and climatic simulation equipment. Advanced GPS/Hybrid Simulation (AGHS) capability will support laboratory testing with the new GPS signal structure and provide digital modeling of modernized GPS equipment. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, ASRAAM, AGM-130, JTIDS, JSTARS, Combat Talon, etc.

AEDC, located at Arnold AFB, TN, provides ground environmental test support for DoD aeronautical, missile, and space programs. The center has 53 test facilities providing: aerodynamic testing of scale model aircraft, missile, and space systems; testing of large and full-scale satellites, sensors, and space vehicles in a simulated space environment; altitude environmental testing for aircraft, missile, and spacecraft propulsion systems; and testing of large-scale models such as space boosters together with their propulsion systems. The Computer Aided Modernization Project (CMP) will provide increased capability for data processing and storage and provide wider availability of workstations. The Propulsion Wind Tunnel (PWT) Upgrades project sustains long-term operation of tunnels 16T and 16S to meet transonic/supersonic test needs. The Improve Turbine Engine Structural Integrity project will provide new state-of-the-art structural test monitoring and data analysis systems to support turbine engine structural tests to detect and analyze high cycle fatigue. The Hypersonic Capability Development project provides for the studies and analysis of the hypersonic wind tunnel requirements definition and program planning. Real-Time Display and Analysis System will provide upgraded displays and analysis systems to several key test facilities to help achieve a portion of AEDC's vision of integrating test/plant/utilities operations. JSF STOVL Engine Test Cells

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0604759F Major T&E Investment	PROJECT 4597
<p>(U) <u>A. Mission Description Continued</u></p> <p>Upgrade will modernize the sea level test cells 2 and 3 (SL2/3) transferred from Trenton NAS under BRAC and installed at AEDC. These cells will be utilized for environmental and structural endurance testing of the Joint Strike Fighter, JSF, engines, F119/F120 derivatives. The cells will be upgraded for the size of the JSF engines and for the testing of the STOVL features of the engines.</p> <p>AFFTC, located at Edwards AFB, CA conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, uninhabited aerial vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment, develop and integrate supporting instrumentation equipment and systems to provide a full airborne instrumentation operational capability. The Advanced Data Acquisition and Processing Systems (ADAPS) project provides an integrated capability to satisfy real-time, first generation, post-test data processing, archival, and display requirements. The developmental approach is directed towards providing a high degree of interoperability between systems and components with adherence to Air Force and DoD guidelines. The technologies being developed under ADAPS have the potential to satisfy data processing and display needs at various multi-Service test ranges. The Flight Simulation Modernization (FSM) project will upgrade the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements. The Modeling and Simulation T&E Resources (MASTER) program is a joint development effort between the AFFTC and AEDC. The goal is for the two Centers to integrate modeling and simulation (M&S) more closely to ground and open-air range flight test to reduce the cost and time of developmental testing. MASTER has been divided into five separate development efforts to meet this goal: the Consolidated Model and Data Repository; the development of a Configuration Management, scheduling and asset tracking system; the Propulsion Data Validation and Analysis System; the Store Separation Simulation Capability and the Fluid Structural Interaction Capability project will provide the TEMS facility with subsystem models to build future simulations and the tools to validate real-time modeling with ground tests and open-air range flight test. The Linked Interactive T&E Networking (LITENING) project will provide the network infrastructure to support inter-range simulations and support the efficient transmission of flight test data to various facilities at Edwards for processing and analysis. The Advanced Range Telemetry (ARTM) Integration project will procure and integrate improved range telemetry systems to provide greater efficiencies in telemetry frequency utilization.</p> <p>SMC/TE located at Kirtland AFB, NM is responsible for test planning and implementation for all space and ballistic missile systems. On-orbit testing is conducted at the RDT&E Support Center (RSC) at Kirtland AFB NM and ground control systems are tested by the Center for Research Support (CERES) at Schriever AFB CO using test and check out satellites. The Combined Space Test Task Force project will provide the capability to develop and test new satellites and ground control systems. As of FY02, SMC/TE will be moved to AFSPC under the Space Commission recommendations and no longer function as part of the DT&E infrastructure.</p>		
Project 4597	Page 3 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	4597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$0	46 Test Wing, Air Armament Center	
(U) \$2,755	CAIS Integration. Continued integration, procured mini-CAIS hardware, and continued procurement of support equipment for CAD/CAM and preflight quick-look capability.	
(U) \$1,430	C4I Test Capabilities Upgrade. Continued acquisition of workstations, network connections, and processing hardware/software. Began upgrades to the JTIDS OPFAC.	
(U) \$3,525	GWEF. Continued acquisition of the multispectral man-in-the-loop. Began acquisition of an Imaging IR Simulation & Projection capability. Continued development of aircraft/munitions modeling and simulation.	
(U) \$1,635	GPS Range Integration. Continued acquisition of Advanced Range Data System (ARDS) pods, S/W improvements, and ground vehicle instrumentation.	
(U) \$1,798	PRIMES. Began development of aircraft/munitions interface simulations for UCAVs. Continued advanced simulator/stimulator upgrades to include off-board sensor simulator.	
(U) \$2,515	ASTE Range Systems. Continued upgrades to telemetry, TSPI systems, communications and arenas. Began upgrades to gun ranges, microwave, fuze test, range instrumentation systems and the Kinetic Energy Munition Test Facility. Acquired a Forward Looking Infrared (FLIR) system, and video phototheodolites.	
(U) \$1,178	Mission Control/Data Analysis. Continued procurement of data acquisition equipment and 3-D terrain generation/visualization capability. Began acquisition of H/W and S/W for 'near' real-time data processing.	
(U) \$1,535	Multispectral Missile Warning System Test Capability. Completed the high off boresight angle flight motion simulator (FMS) and countermeasures simulation.	
(U) \$1,304	Seeker T&E. Began upgrades to the MMW measurement systems. Acquired a midwave focal plane array (FPA) imaging radiometer. Upgraded the Seeker Test Van and the Airborne Seeker Evaluation Test System (ASETS) instrumentation.	
(U) \$4,375	Eglin Range Upgrades. Supported three on-going projects: 1. Santa Rosa Island Reconstitution: continued development of three focus sites to provide open air Hardware-in-the-Loop (HITL) capability. 2. Armament Systems Test Environment: improved several subsystems by integrating the latest technology to support the T&E of modern weapon systems. 3. C4I Upgrades: improved multifunctional reconfigurable C4I Test and Evaluation infrastructure.	
(U) \$0	Arnold Engineering Development Center	
(U) \$1,127	CMP. Added increment five worksystems. Initiated the Aircraft Systems Test Operations Pilot effort. Integrated the Product Data Manager application software packages. Initiated the migration of real-property drawings and designs to a raster format.	
(U) \$6,761	PWT Upgrades. Completed installation of data acquisition and processing system in the 16T wind tunnel. Designed the 16S wind tunnel data	
Project 4597	Page 4 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	4597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	acquisition and processing system. Began installation of 16S wind tunnel data acquisition and processing system. Began installation of 16T/16S wind tunnel plant control systems. Began planning/design for electric motor repower upgrades. Began planning for flow quality improvements.	
(U) \$531	Improve Turbine Engine Structural Integrity. Continued development of Non-Intrusive Stress Monitoring System (NSMS) software and hardware to identify turbine engine rotor blade characteristics. Continued upgrades of the dynamic data acquisition and processing system.	
(U) \$1,000	Laser Induced Surface Induction (LISI). Began the development and test of the University of Tennessee Space Institute LISI project.	
(U) \$3,812	Hypersonic Capability Development. Continued study contracts for requirements definition and program planning. Conducted experiments to prove concept for wind tunnel.	
(U) \$0	Air Force Flight Test Center	
(U) \$3,600	CAIS I&S. Continued development and implementation/delivery of an internet-based instrumentation management information system. Procured additional airborne Solid State Recorder. Procured bandwidth efficient telemetry transmitters and demodulators. IOC of Instrumentation Loading Integration Analysis and Decommuation (ILIAD) established. Began integration of commercial tools for instrumentation support into ILIAD. Tested prototype and procured a production Solid State Recorder. Complete rehost of Test Instrumentation Management Systems (TIMS) to ILIAD. Began development of CAIS Bus to Next Generation (NextGen) Bus (Fibre Channel) bridge. Provided the capability to support new airborne instrumentation capabilities including: on-board processing innovations, on-board smart sensors, and high data rate decommuation and recording.	
(U) \$2,705	ADAPS. Continued to integrate real-time systems across the flight test center to replace older systems. Continued development of full capability for near real-time and post test analysis system.	
(U) \$3,130	Flight Simulation Modernization. Began upgrade to the TEMS facility with the first of two aircraft specific configuration cockpits to be integrated with the generic high-fidelity reconfigurable cockpit. Upgraded the interfaces between the TEMS simulations to allow multi-system simulation testing.	
(U) \$2,205	LITENING. Established core network. Connected the Avionics Test & Integration Complex (ATIC), Ridley Mission Control Center and the backbone ring together. Began development on the Air Traffic Management Network Operations Center.	
(U) \$1,055	MASTER. Began initial planning to develop the repository for models and data using established procedures to validate them with data collected during ground and flight test. The models and data will be used to support man-in-the-loop simulator testing and training, which will support configurable simulations for the Flight Simulation Modernization and the Air Warfare Mission Simulator (AWMS) cockpits.	
(U) \$4,975	Cooperative Launch Platform (Formerly Heavylift Launch Platform). Upgrade a B-52H aircraft to perform medium-lift launch platform duties for Re-usable Aerospace Vehicles (RAV) testing and operation. The upgrade will provide the capacity to carry research vehicles in the 25,000-pound range. Upgrade also includes installation of instrumentation needed for monitoring key test parameters of the launch platform and	
Project 4597	Page 5 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	4597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	test vehicle for safety and technical GO/NO-GO decisions.	
(U) \$886	Combined Space Test Task Force. Began development and acquisition of expert systems to support operations and testing of future technology for R&D satellites. Evaluated effectiveness of these systems and their value to support warfighter needs.	
(U) \$235	Joint Project Office for T&E support.	
(U) \$54,072	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$0	46 Test Wing, Air Armament Center	
(U) \$2,894	CAIS Integration. Complete integration and required support equipment acquisition.	
(U) \$1,750	C4I Upgrade. Complete the acquisition of workstations, connectivity, HW/SW upgrades, and JTIDS OPFAC upgrades. Acquire test analysis equipment and M&S tools.	
(U) \$2,527	GWEF. Complete the multispectral man-in-the-loop and imaging IR developments. Continue aircraft/munition M&S efforts.	
(U) \$1,699	GPS Range Integration. Complete acquisition of ARDS pods, S/W improvements, and ground vehicle instrumentation.	
(U) \$1,680	PRIMES. Complete the aircraft/munitions interface simulations and the off-board sensor simulator. Acquire a synthetic aperture radar target simulator.	
(U) \$1,843	ASTE Range Systems. Complete acquisition of instrumentation/equipment for infrastructure upgrades in such areas as TSPI, microwave, TM, fiber optics/communications, arena test, gun ranges, high speed video, and fuze test.	
(U) \$1,392	Mission Control/Data Analysis. Complete procurement of data acquisition equipment, near real-time data processing equipment, and a 3-D terrain generation/visualization capability.	
(U) \$856	Seeker T&E. Complete upgrades to the MMW measurement system and acquire a high speed digital data recorder and a long wavelength FPA imaging radiometers.	
(U) \$6,486	Eglin Range Upgrades. Support Armament Systems Test Environment (ASTE) Infrastructure Upgrades: improve several subsystems by integrating latest technology to support the T&E of modern weapon systems. Begin integration of the 3-DATA system.	
(U) \$0	Arnold Engineering Development Center	
(U) \$3,393	CMP. Procure/Install increment six worksystems. Complete Product Data Manager integration with application software packages. Upgrade older worksystems to the state-of-the-art PC hardware configuration. FOC of CMP systems.	
(U) \$20,133	PWT Upgrades. Complete installation of 16S wind tunnel data acquisition and processing system. Complete installation of plant control systems in 16T/16S wind tunnels. Initiate procurements for electric motor upgrades. Begin design of flow quality improvements.	
Project 4597	Page 6 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	4597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$880	Improve Turbine Engine Structural Integrity. Complete installation of the dynamic data acquisition and processing system and the NSMS. Begin planning/design of the Structural Dynamic Response Analysis Capability.	
(U) \$3,492	Hypersonic Capability Development. Continue study contracts for requirements definition and program planning. Continue experiments to prove concept for wind tunnel.	
(U) \$1,098	Laser Induced Surface Induction (LISI). Continue development and test of the University of Tennessee Space Institute LISI project.	
(U) \$0	Air Force Flight Test Center	
(U) \$2,445	CAIS I&S. Complete the development and integration of an internet-based instrumentation management system. Continue development of CAIS Bus to NextGen Bus (Fibre Channel) Bridge. Continue to provide the capability to support new airborne instrumentation capabilities including: on-board processing innovations, on-board smart sensors, and high data rate decommutation and recording.	
(U) \$2,488	ADAPS. Complete development of near real-time and post test analysis capabilities to include the Combined Test Force level. Complete the installation of common data systems throughout the Flight Test Center. Upgrade and install control room workstations.	
(U) \$3,860	Flight Simulation Modernization. Complete upgrade to the TEMS Facility with the first of two aircraft specific configuration cockpits to be integrated with the generic reconfigurable cockpit.	
(U) \$2,102	LITENING. Extend the ATM backbone network to critical Range Support buildings and CTFs. Develop the Network Operations Center to monitor and manage network traffic loads. Expand secure network links to allow classified test data to be transferred between integrated secret, compartmentalized facilities.	
(U) \$1,489	MASTER. Develop and establish propulsion, weapons, and airframe interaction models. Begin design and development of the model/data repository.	
(U) \$763	Advanced Range Telemetry (ARTM) Integration. Begin integration of RCC FQPSK modulation/demodulation technology into telemetry transmitters/receivers. Begin integration of PCM data compression and forward error correction technology into the range infrastructure (includes airborne and ground segments). Begin improvement and modernization of telemetry ground stations. Begin to migrate telemetry users, who are presently in S-Band, to L-Band.	
(U) \$499	X-15 Rocket Test Stand. Begin design, restoration and modification of the existing X-15 rocket engine test stand and control bunker. Study the relocation of the AFFTC LOX facility away from the test stand, located at Edwards AFB, CA.	
(U) \$2,594	Multi-Axis Thrust Stand. Begin redesign, retrofit and relocation the existing Overhead Support System (OSS) from NASA Ames Research Center to the existing outdoor engine test cell facility at Edwards AFB, CA. Initiate modification of existing control rooms, support systems, and data acquisition.	
(U) \$935	Combined Space Test Task Force. Continue development and evaluation of expert systems to support operations and testing of future technology	
Project 4597	Page 7 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	4597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
	R&D satellites. Implement lessons learned and transition technical advancements to operational users.	
(U) \$333	Joint Project Office for T&E support.	
(U) \$67,631	Total	
	The following net transactions are not reflected in the FY01 program total: BTR=-526K, SBIR=-2470K, CGR RESC=-148K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$0	46 Test Wing Air Armament Center	
(U) \$938	Advanced GPS Hybrid Simulation (AGHS). Begin procurement of hardware and software required to simulate the new GPS signal structure.	
(U) \$2,157	Weapon Systems Integration Test Capability (WICS). Begin F-22 flutter, loads, stability and control M&S. Begin Eglin-Edwards high-speed data link for near real-time data analysis.	
(U) \$1,173	Advanced Airborne Instrumentation Integration (AAIL). Begin acquisition and integration of state-of-the-art airborne instrumentation such as Advanced CAIS and CTEIP developed ARTM. Acquire ground support equipment to support pre/post flight operations	
(U) \$4,221	SCRAM. Begin acquisition of instrumentation to support scene characterization and reconstruction for T&E of EO/IR, RF/MMW, and GPS seeker/sensors.	
(U) \$888	Test Control & Visualization. Begin upgrades to TM systems and network infrastructure to handle higher data rates. Acquire real time computing servers, data recorders, and video displays.	
(U) \$1,485	C4I Advanced Simulation and Test Environment (CASTE). Acquisition of equipment, instrumentation, hardware, software, and connectivity.	
(U) \$2,175	Link-16 Support. Begin acquisition of platform simulators and related datalink equipment.	
(U) \$791	Climatic Lab Upgrade. Begin upgrades to instrumentation systems, climatic simulation equipment and facility equipment.	
(U) \$0	Air Force Flight Test Center	
(U) \$2,111	Flight Simulation Modernization. Begin fabrication of second aircraft configuration cockpits to be integrated with the generic high fidelity reconfigurable cockpit and associated visual system and support equipment.	
(U) \$2,587	LITENING. Complete expansion of ATM Network to range support buildings and new CTF facilities. Expand Multi-media capabilities for flight testing and modeling and simulation. monitor and manage network traffic loads. Expand secure network links to allow classified test data to be transferred between integrated secret, compartmentalized facilities.	
(U) \$2,305	MASTER. Incorporate engine propulsion rule-based techniques, engine manufacturer techniques, statistical logic, trending algorithms, and sensor characterization to detect operational non-conformance events and an information archival system to archive test information for ground	
Project 4597	Page 8 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0604759F Major T&E Investment	4597
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	and flight test systems . Develop Initial Operating Capability of the automated tracking and scheduling system for ATIC assets. Provide the Avionics Test & Integration Complex (ATIC) with automated services to support additional ground testing at the ATIC. Provide for the storage and version control of tools obtained from such sources.	
(U) \$2,616	Advanced Range Telemetry (ARTM) Integration. Continue to integrate Tier I modulation (FQPSK) developed by ARTM into telemetry infrastructure. Continue the migration of telemetry users from S-band to L-band. Begin upgrading telemetry support infrastructure (includes airborne and ground segments) to fully utilize real-time data compression, error correction, standardized solid-state data recorders, and frequency and bandwidth reuse, deconfliction, and reallocation.	
(U) \$495	Advanced GPS Range Sensors (AGRS). Begin to plan GPS range equipment upgrade to reflect enhanced capabilities made to GPS constellations. Integrate newly develop GPS instrumentation equipment into range sensors.	
(U) \$1,103	Data Processing Multi-Stage Improvement Program (DPMISP). Begin upgrade of first generation telemetry data processing capability. Initiate hardware analysis and prototype of next generation telemetry processor.	
(U) \$1,172	Next Generation Test Instrumentation. Integrate ARTM developed systems into multiple aircraft. Provide enhancements and improvements to the Internet based Instrumentation Management Information Systems. Expand the capabilities of ILIAD to program and preflight test vehicles. Develop airborne instrumentation components to address new sensor interfaces. Continue to purchase instrumentation components to upgrade obsolete and unreliable instrumentation components. Continue the migration of telemetry users into higher efficiency modulation techniques and L-band. Integrate on-board data processing devices into data acquisition systems. Conduct test of NexGenBus devices.	
(U) \$0	Arnold Engineering Development Center	
(U) \$16,262	PWT Upgrades. Continue procurement of and begin installation and checkout of electric motor upgrades. Continue installation of plant control systems in 16T/16S wind tunnels. Begin acquisition planning of flow quality improvements.	
(U) \$1,862	Improve Turbine Engine Structural Integrity. Begin installation of Dynamic Data Recording Systems. Begin fabrication and installation of Non-Instrusive Stress Measurement System (NSMS) Systems. Continue to upgrade Dynamic Data processing system.	
(U) \$2,518	Real-Time Display and Analysis System. Begin the planning and design phases for the upgrading of the turbine test unit supervisory system and the turbine/wind tunnel test operations centers and initiate the procurement for the long lead time equipment.	
(U) \$1,619	JSF STOVL Engine Test Cells Upgrade. Begin design and fabrication of hardware for sea level (SL3) test cell upgrades for JSF testing.	
(U) \$0	Space & Missile Systems Center T&E Directorate	
(U) \$479	Combined Space Test Task Force. Complete CTF tasks including final installation, test, and activation.	
(U) \$0	Other Projects	
(U) \$300	Joint Project Office for T&E support.	
Project 4597	Page 9 of 11 Pages	Exhibit R-2 (PE 0604759F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE			
BUDGET ACTIVITY		PE NUMBER AND TITLE		PROJECT	
06 - Management and Support		0604759F Major T&E Investment		4597	
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2002 (\$ in Thousands) Continued</u>					
(U)	\$600	Technology Insertion & Risk Reduction Program. Initiate TIRR project with the funding of first sub-project.			
(U)	\$49,857	Total			
(U) <u>B. Budget Activity Justification</u>					
This Program Element is in Budget Activity 6, Management and Support, because it is a Research and Development (R&D) effort for Improvement and Modernization of T&E capabilities at Air Force Test Centers.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U)	Previous President's Budget (FY 2001 PBR)	56,659	54,057	51,136	
(U)	Appropriated Value	57,934	68,257		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-405	-148		
	b. Small Business Innovative Research	-1,337	0		
	c. Omnibus or Other Above Threshold Reprogram	-1,600			
	d. Below Threshold Reprogram	-293	0		
	e. Rescissions	-227	-478		
(U)	Adjustments to Budget Years Since FY 2001 PBR			-1,279	
(U)	Current Budget Submit/FY 2002 PBR	54,072	67,631	49,857	TBD
(U) <u>Significant Program Changes:</u>					
Congressional action, FY00 plus up of 13,600: Eglin Range Upgrade (4,500), Hypersonic Capability Development (4,000), Heavy Launch Platform (5,100).					
Congressional Action, FY01 plus up of 14,200: Eglin Range (6,500), Hypersonic Capability Development(3,500), Multi-Axis Thrust Stand (2,600), X-15 Rocket Test Stand (500), Laser Induced Surface Improvement (1,100).					

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001			
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0604759F Major T&E Investment				PROJECT 4597		
(U) D. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E									
(U)	Other APPN									
	Related RDT&E: PE 0604256F, Threat Simulator Development and PE 0604940D, Central Test and Evaluation Investment Program									
(U) E. Acquisition Strategy										
	This program element uses several different contracting strategies to provide the most cost effective T&E investment solutions. The main acquisition strategy is to use full and open competition wherever possible to improve and modernize existing test capabilities.									
(U) F. Schedule Profile										
		<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>		
		1	2	3	4	1	2	3	4	1
(U)	Air Force Test Investments									
	This PE contains multiple schedule profiles which are available upon request.									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605101F RAND Project Air Force					PROJECT 1110		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1110	Project Air Force	24,081	21,877	25,098	25,524	26,073	26,621	27,104	27,763	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) **A. Mission Description**
 This program provides for continuing analytical research across a broad spectrum of aerospace issues and concerns. The Project AIR FORCE (PAF) research agenda is focused primarily on mid- to long-term problems; in addition, PAF provides quick response assistance for senior Air Force officials on high priority, near term issues. Results and analytical findings directly impact senior management deliberations on major issues. The Air Force Steering Group, chaired by the Vice Chief of Staff, reviews, monitors, and approves PAF annual research efforts. Each project is initiated, processed, and approved IAW PAF Sponsoring Agreement which requires General Officer (or SES equivalent) sponsorship and involvement on a continuing basis.

(U) PAF is organized in four primary research program areas: strategy and doctrine; aerospace force development; manpower, personnel and training; and resource management. Integrative research projects are also conducted at the division level with direct support assistance provided through the most applicable program. Research programs address organizational cross-cutting issues as defined by specific research themes approved by the Air Force Steering Group. These research themes encompass a wide spectrum of topics including external challenges to national security, integrating the ISR Mix, implementation of the Air Expeditionary Force, tailoring and reducing infrastructure and improved weapon system costing.

(U) In FY 99, principal research efforts included studies on Chinese defense modernization and the USAF, NATO's role in ensuring energy security, the role of aerospace power in urban conflict, implications of unmanned air vehicles for the future shape of the Air Force, enhancing the effectiveness of air expeditionary forces, exploiting commercial communication systems, implementation of lean logistics and agile combat support, improved Air Force contracting for support services, improved weapon system cost analysis, and improved ways of measuring and forecasting Air Force readiness, managing the aging aircraft fleet, shaping the future total force, and creating a human resource system to support the expeditionary aerospace force.

(U) During FY00, research undertaken by Project AIR FORCE (PAF) was driven by specific focus areas developed through the USAF strategic planning process, force modernization initiatives, and enduring management and resource areas of concern to USAF leadership. The research agenda for FY00 extended work initiated in FY99. Work was defined in support of research themes which focused on major external challenges and opportunities affecting USAF operations, institutionalization of the USAF vision and strategic plan, implementation of the Air Expeditionary Force concept, integration of air and space operations, power projection forces, and, force mix

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001												
BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0605101F RAND Project Air Force	PROJECT 1110												
<p>(U) <u>A. Mission Description Continued</u> and infrastructure. Of particular note in FY00, PAF continued of an assessment of Kosovo lessons learned, examined problems associated with aging aircraft, performed an analysis of the role of aerospace forces in urban warfare, assessed India's emerging nuclear posture, studied ways to implement flex-basing to enhance global presence for the AEF concep, and performed a strategic appraisal of Information Warfare.</p> <p>(U) For FY01, the PAF research themes have been modified to address a focus on transformation efforts. Research efforts will concentrate on topics such as the proper mix of on-board and off-board ISR sensors, continued integration of air and space assets, issues associated with pursuing a common wide-body aircraft frame, establishment and sustainment of space capabilities, how to best develop Air Force leaders, retention issues, agile combat support, working capital fund, and preserving the industrial base.</p> <p>(U) For FY02, the current research themes which guide the PAF research agenda will be adjusted as necessary to stay aligned with Air Force transformation efforts, to address issues raised during QDR 2001 and to accomodate a change in administration. Questions of interest will likely be incorporation of Kosovo lessons learned, maturation of the AEF concept of operations, continued use of commercial sources and methods, effective use of Air Force resources and long term modernization of the aerospace force.</p> <p>(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias thereby providing perspectives and insights to senior Air Force leaders free from parochial spins not necessarily in the best interest of the Air Force at large.</p> <p>(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are shared beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and deposited with the Defense Technical Information Center available to a broad range of qualified government and commercial individuals and activities.</p>														
<p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">(U) \$4,100</td> <td>Strategy and Doctrine</td> </tr> <tr> <td>(U) \$7,000</td> <td>Aerospace Force Development</td> </tr> <tr> <td>(U) \$3,600</td> <td>Manpower, Personnel and Training</td> </tr> <tr> <td>(U) \$7,400</td> <td>Resource Management</td> </tr> <tr> <td>(U) \$1,981</td> <td>Integrative Research / Direct Support</td> </tr> <tr> <td>(U) \$24,081</td> <td>Total</td> </tr> </table>			(U) \$4,100	Strategy and Doctrine	(U) \$7,000	Aerospace Force Development	(U) \$3,600	Manpower, Personnel and Training	(U) \$7,400	Resource Management	(U) \$1,981	Integrative Research / Direct Support	(U) \$24,081	Total
(U) \$4,100	Strategy and Doctrine													
(U) \$7,000	Aerospace Force Development													
(U) \$3,600	Manpower, Personnel and Training													
(U) \$7,400	Resource Management													
(U) \$1,981	Integrative Research / Direct Support													
(U) \$24,081	Total													
Project 1110	Page 2 of 4 Pages	Exhibit R-2 (PE 0605101F)												

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001			
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT			
06 - Management and Support	0605101F RAND Project Air Force	1110			
(U) <u>A. Mission Description Continued</u>					
(U) <u>FY 2001 (\$ in Thousands)</u>					
(U) \$4,200	Strategy and Doctrine				
(U) \$5,900	Aerospace Force Development				
(U) \$4,600	Manpower, Personnel and Training				
(U) \$5,900	Resource Management				
(U) \$1,277	Integrative Research / Direct Support				
(U) \$21,877	Total				
The following net transactions are not reflected in the FY01 program total: BTR = +3999K. These transactions are not reflected in other sections of the R-docs where an FY01 total is shown.					
(U) <u>FY 2002 (\$ in Thousands)</u>					
(U) \$3,800	Strategy and Doctrine				
(U) \$6,747	Aerospace Force Development				
(U) \$5,400	Manpower, Personnel and Training				
(U) \$7,200	Resource Management				
(U) \$1,951	Integrative Research / Direct Support				
(U) \$25,098	Total				
(U) <u>B. Budget Activity Justification</u>					
This program is in budget activity 6 - Management and Support, because it funds RAND Project AIR FORCE (PAF), the only Air Force Federally Funded Research and Development Center for studies and analyses.					
(U) <u>C. Program Change Summary (\$ in Thousands)</u>					
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2001 PBR)		20,560	24,080	20,354	
(U) Appropriated Value		20,560	22,080		
(U) Adjustments to Appropriated Value					
a. Congressional/General Reductions		-392	-155		
b. Small Business Innovative Research					
c. Omnibus or Other Above Threshold Reprogram					
Project 1110		Page 3 of 4 Pages		Exhibit R-2 (PE 0605101F)	

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
06 - Management and Support				0605101F RAND Project Air Force			1110				
(U) C. Program Change Summary (\$ in Thousands) Continued											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>				
	d. Below Threshold Reprogram			3,993							
	e. Rescissions			-80	-48						
(U)	Adjustments to Budget Years Since FY 2001 PBR					4,744					
(U)	Current Budget Submit/FY 2002 PBR			24,081	21,877	25,098		TBD			
(U)	<u>Significant Program Changes:</u>										
	N/A										
(U) D. Other Program Funding Summary (\$ in Thousands)											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable										
(U) E. Acquisition Strategy											
A comprehensive review of RAND/Project AIR FORCE has been completed and a new, 5-year (FY01-FY05) Cost Plus / Fixed Fee contract was awarded on 30 Sep 00.											
(U) F. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>			<u>FY 2002</u>	
				1	2	3	4	1	2	3	4
(U)	Adjust FY00 Research Plan				*						
(U)	Annual Evaluation FY00						*				
(U)	Draft FY01 Research Plan					*					
(U)	Approve FY01 Research Plan						*				
(U)	Adjust FY01 Research Plan							*			
(U)	Draft FY02 Research Plan									X	
(U)	Approve FY02 Research Plan									X	
(U)	Adjust FY02 Research Plan										X

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support					PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study					PROJECT 2767	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
2767 Ranch Hand II Epidemiology Study	4,183	4,315	10,952	11,338	4,837	4,966	4,330	0	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0	

Note: FY 2003-FY 2007 budget numbers do not reflect the DoD strategy review results.

(U) **A. Mission Description**
 As a result of Presidential direction, PE 0605306F was established to conduct a 20-year epidemiology investigation of approximately 1,200 Air Force personnel who were involved with aerial spraying of herbicides in Vietnam from 1962 to 1971 (Operation Ranch Hand). The objective of this investigation is to determine whether long-term health effects exist and can be attributed to occupational exposure to phenoxy herbicides and their associated dioxins.

This project involves a 20-year study, which was initiated in 1982, that compares United States Air Force (USAF) Ranch Hand personnel to a control group of USAF crew members and support personnel who were not exposed to herbicides while serving in Southeast Asia. Approximately 20,000 individuals (exposed personnel group plus control group) are participating in the annual mortality study, with approximately 2,200 (exposed personnel group plus control group) of these participating in the detailed morbidity study during each physical examination cycle. The detailed physical examination cycle includes follow-up health examinations at the 3-, 5-, 10-, 15-, and 20-year time periods. The study includes examination of the possible occurrence of birth defects in children as determined from children's medical records and family medical histories. The Congressionally-established Ranch Hand Advisory Committee has directed that all study findings be reported to the scientific community as peer-reviewed journal articles. Note: This program is comprised of six cycles and each cycle consists of participant physical examinations followed by data analysis and report generation. The largest expenditure of funds occurs during the physical exam years of 1982-1983, 1985-1986, 1987-1988, 1992-1993, 1997-1998, and 2002-2003. The program is currently at the end of Cycle 5 and in the preparation phase for Cycle 6, therefore, significantly more funds will be required in FY 2002 and FY 2003 than were required in FY 2000 and FY 2001.

(U) **FY 2000 (\$ in Thousands)**

(U) \$1,035 Completed statistical analysis of examination data. Documented all analyses and findings in 4,000 page, fifth cycle final report. Conducted analyses as directed by the Congressionally-established Ranch Hand Advisory Committee. Analyses were based on current morbidity data trends and findings.

(U) \$386 Conducted other agency/university studies supporting scientific effort. Started Center for Disease Control study to test for the presence of other forms of dioxin than found in Agent Orange. Conducted morbidity and mortality mathematical modeling. Conducted dioxin half-life and serum dioxin analyses.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study	
		PROJECT 2767
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
(U) \$2,762	Processed and documented examination data to include updating of the participant database. Conducted medical records coding. Performed the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel. Conducted data analysis for articles to be submitted to peer-reviewed journals as directed.	
(U) \$4,183	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$1,095	Conducted analyses as directed by the Congressionally-established Ranch Hand Advisory Committee. Conducted process review prior to final examination cycle to determine potential participation rates, requirements for in-house or regional examination sites, and statistical, schedule, and cost implications of the aging study population.	
(U) \$567	Conducted other agency/university studies supporting scientific effort. Completed Center for Disease Control study to test for the presence of other forms of dioxin than found in Agent Orange. Completed morbidity and mathematical modeling. Completed dioxin half-life and serum dioxin analyses. Started semen DNA study.	
(U) \$2,653	Processed and documented examination data to include updating of the participant database. Conducted medical records coding. Performed the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel. Conducted data analysis for articles to be submitted to peer-reviewed journals as directed.	
(U) \$4,315	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$7,800	Initiate the sixth and final cycle of physical examinations, questionnaires, and participant database.	
(U) \$1,694	Continue to process and document examination data to include continuing to verify the physical examination database. Conduct new coding and verify the coding of existing medical records. Perform the annual mortality analysis of approximately 1,200 Ranch Hand personnel and 19,000 comparison personnel. Conduct data analysis for articles to be submitted to peer-reviewed journals as directed. Process and document Cycle 6 examination data to include updating of the participant database. Continue to conduct medical records coding.	
(U) \$1,458	Process and document examination data. Continue archiving previous cycles' examination data and digitize and archive the Cycle 6 data as received. Conduct medical records coding and verification of examination database and Cycles 1 through 5 coding. Perform annual mortality analysis. Conduct data analysis for journals and reports.	
(U) \$10,952	Total	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																									
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605306F Ranch Hand II Epidemiology Study				PROJECT 2767																																																								
<p>(U) <u>B. Budget Activity Justification</u> This program is in Budget Activity 6, Management and Support, since it includes research and development efforts directed towards support of installations or operations required for general research and development use.</p>																																																																
<p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">4,408</td> <td style="text-align: right;">4,356</td> <td style="text-align: right;">11,318</td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">4,510</td> <td style="text-align: right;">4,356</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-10</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: right;">-100</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: right;">-170</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-47</td> <td style="text-align: right;">-41</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: right;">-366</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">4,183</td> <td style="text-align: right;">4,315</td> <td style="text-align: right;">10,952</td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u> None. The increase in FY 2002 and FY 2003 funding is due to the physical exams scheduled in these years. The increase is a normal part of the cyclical nature of funding in this program.</p>											<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	4,408	4,356	11,318	TBD	(U) Appropriated Value	4,510	4,356			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-10				b. Small Business Innovative Research	-100				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-170				e. Rescissions	-47	-41			(U) Adjustments to Budget Years Since FY 2001 PBR			-366		(U) Current Budget Submit/FY 2002 PBR	4,183	4,315	10,952	TBD
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Project 2767				Page 3 of 3 Pages				Exhibit R-2 (PE 0605306F)																																																								

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation					PROJECT 0191		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
0191	Initial Operational Test & Eval	26,801	32,933	28,998	29,253	29,812	30,432	30,975	31,641	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 Initial Operational Test and Evaluation (IOT&E) is conducted to determine the operational effectiveness and suitability of systems undergoing research and development (R&D) efforts. It is an evaluation of a system's performance when the complete system is tested and evaluated against operational criteria by personnel with the same qualifications as those who will operate, maintain and support the system when deployed. In general, IOT&E is performed on new systems in development, major modifications and other systems as directed. This PE funds Congressionally mandated IOT&E to support major weapon system acquisition decisions beyond Low-Rate Initial Production (LRIP), Milestone III, fielding, and declaration of Initial Operational Capability (IOC). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond Low Rate Initial Production. IOT&E will be planned to completely and unambiguously answer all critical operational issues (COI) as thoroughly as possible. This PE funds the OT participation in Combined Developmental/Operational Test (DT)/OT, the Air Force participation in Multiservice Operational Test and Evaluation (MOT&E), and Follow-on Operational Test and Evaluation (FOT&E) when it is the continuation of IOT&E activities past the Milestone III decision. FOT&E answers specific questions about unresolved COIs and test issues, or completes areas not finished during the IOT&E. This PE also funds related operational test and evaluation (OT&E) activities such as, Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA), and independent IOT&E which support major milestones and decision points prior to Milestone III, fielding, or declaration of IOC. IOT&E programs are identified in several system categories: Air; Space; Weapons; Command, Control, Communications, Computers, and Intelligence (C4I); Combat Support; and Test Support. Air Force Operational Test and Evaluation Center (AFOTEC) obtains general support services from contracts awarded after employing full and open competition contracting strategies.

(U) **FY 2000 (\$ in Thousands)**
 (U) \$15,950 (U) CATEGORY: AIR SYSTEMS. Planned, executed, and reported IOT&E activities, to include: Airborne Laser (ABL); F-15 APG-63 Radar Upgrade (APG-63); Advanced Strategic & Tactical IR Expendable (ASTE); Common Missile Warning System (CMWS); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Joint Helmet Mounted Cueing System (JHMCS); Joint SIGNIT Avionics Family (JSAF); Joint Strike Fighter (JSF); Tactical Electronic Warfare System (TEWS); Unmanned Aerial Vehicle (UAV) - Predator and other systems.
 - ABL: Advance planning for EOA2, combined DT/OT, and IOT&E.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2000 (\$ in Thousands) Continued</u></p> <ul style="list-style-type: none"> - APG-63: Executed IOT&E Phase II and wrote final report. - ASTE: Completed classified testing. Advance planning for incremental IOT&E. - CMWS: Completed detailed planning and conducted OA. - B-1B CMUP Block E: Detailed planning for OA. - B-1B CMUP Block F: Detailed planning for OA. - CV-22: Participated in OPTEVFOR-led MV-22 IOT&E. Advance planning for combined DT/OT. - F-15 FOTD: Early involvement and advance planning for combined DT/OT and IOT&E. - F-22: Executed OA. Detailed planning and execution of combined DT/OT. Advance planning for IOT&E. - JHMCS: Detailed planning for IOT&E. - JSAF: Detailed planning for OA; advance planning for OUE. - JSF: Continued EOA; detailed planning for combined DT/OT and OA. - TEWS: Completed IOT&E and wrote final report. - UAV: Detailed planning for and conducted OUE. <p>(U) \$1,528 (U) CATEGORY: SPACE SYSTEMS. Planned, executed, and reported IOT&E activities, to include: Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite Block IIR (GPS IIR); MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS) and other systems.</p> <ul style="list-style-type: none"> - EELV: Detailed planning and execution of OA. - GBS: Detailed planning for combined DT/OT and MOT&E. - GPS IIR: Advance planning for IOT&E. - MILSTAR II: Detailed planning for and began incremental MOT&E. - NPOESS: Detailed planning for OA. - SBIRS: Continued detailed planning for Increment 1 IOT&E. <p>(U) \$3,975 (U) CATEGORY: WEAPONS. Planned, executed, and reported IOT&E activities, to include: AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); ICBM-MMIII Propulsion Replacement Program (PRP); Joint Air-to-Surface Standoff Missile (JASSM); Joint Direct Attack Munition (JDAM); Joint Standoff Weapon (JSOW); Wind Corrected Munitions Dispenser (WCMD); and other systems.</p> <ul style="list-style-type: none"> - AIM-9X: Conducted combined DT/OT. Advance planning for IOT&E. - HTSF: Completed detailed planning for OUE. - PRP: Conducted IOT&E. 		
Project 0191	Page 2 of 10 Pages	Exhibit R-2 (PE 0605712F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	<ul style="list-style-type: none"> - JASSM: Advance planning for combined DT/OT and IOT&E. - JDAM: Completed MOT&E and wrote final report. - JSOW: Conducted combined DT/OT and completed detailed planning for MOT&E. - WCMD: Conducted IOT&E and wrote final report. 	
(U) \$2,021	<p>(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, and INTELLIGENCE (C4I). Planned, executed, and reported IOT&E activities, to include: Compass Call; Deliberate Crisis Action Planning and Execution System (DCAPES); Defense IEMATS (DIRECT); Integrated Broadcast System (IBS)/Joint Tactical Terminal (JTT); ICBM Minuteman MEECN Program (ICBM MMP); Theater Battle Management - Core Systems (TBM-CS); TRANSCOM Regulating and C2 Evacuation System (TRAC2ES) and other systems.</p> <ul style="list-style-type: none"> - Compass Call: Conducted IOT&E on Blk 30 upgrade. - DCAPES: Detailed planning for Incr 1 IOT&E. - DIRECT: Conducted IOT&E and wrote final report. - IBS/JTT: Detailed planning for JTT MOT&E. - ICBM MMP: Detailed planning for combined DT/OT and IOT&E. - TBM-CS: Conducted IOT&E for Version 1.1. Advance planning for IOT&E on Version 2.0. - TRAC2ES: Detailed planning for IOT&E. 	
(U) \$1,930	<p>(U) CATEGORY: COMBAT SUPPORT. Planned, executed, and reported IOT&E activities, to include: Common Low Observable Verification System (CLOVerS); Combat Survivor Evader Locator (CSEL); Integrated Logistics System - Supply (ILS-S); Joint Ammunitions Management Standard System (JAMSS); Joint Computer Aided Acq and Log Systems (JCALS); Joint Mission Planning System (JMPS); Joint Service Electronic Combat System Tester (JSECST); Joint Simulation System (JSIMS); Joint Tactical Combat Training System (JTCTS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA) and other systems.</p> <ul style="list-style-type: none"> - CLOVerS: Detailed planning for OUE. - CSEL: Detailed planning for OA. Advance planning for MOT&E. - ILS-S: Conducted Combined Test Force (CTF) Events. - JAMSS: Detailed planning for combined DT/OT. Advance planning for IOT&E. - JCALS: Advance planning for IOT&E on software packages 2 and 3. - JMPS: Detailed planning for EOA. Advance planning for IOT&E. - JSECST: Conducted combined DT/OT and began IOT&E. - JSIMS: Detailed planning for EOA. Advance planning for OA. 	
Project 0191	Page 3 of 10 Pages	Exhibit R-2 (PE 0605712F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
<ul style="list-style-type: none"> - JTCTS: Detailed planning for OA. Advance planning for MOT&E. - NGSL: Completed OA and wrote report. Detailed planning for IOT&E. - RSA: Executed incremental OUEs. 		
(U) \$1,397	(U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.	
<ul style="list-style-type: none"> - Test Capabilities Infrastructure: Continue to develop test tools to meet test capability requirements and shortfalls. 		
(U) \$26,801	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$22,113	(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include: Airborne Laser (ABL); Advanced Strategic & Tactical IR Expendable (ASTE); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; B-52 Avionics Midlife Improvement (AMI); Compass Call; CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Global Hawk High Altitude Vehicle (HAV) UAV; Joint Helmet Mounted Cueing System (JHMCS); Joint Strike Fighter (JSF); and other systems.	
<ul style="list-style-type: none"> - ABL: Continue detailed planning for and conduct EOA2. Advance planning for OA and IOT&E. - ASTE: Detailed planning for incremental IOT&E; begin incremental IOT&E. - B-1B CMUP Block E: Conduct combined DT/OT. Complete detailed planning for IOT&E. - B-1B CMUP Block F: Conduct combined DT/OT. Complete detailed planning for IOT&E. - B-52 AMI: Plan and conduct OA; advance planning for IOT&E. - Compass Call: Conduct IOT&E - CV-22: Conduct combined DT/OT. Detailed planning for CV-22 IOT&E. - F-15 FOTD: Early involvement and advance planning for combined DT/OT and IOT&E. - F-22: Conduct combined DT/OT. Detailed planning for IOT&E. - Global Hawk HAV UAV: Advance Planning for IOT&E and start combined DT/OT. - JHMCS: Complete detailed planning and begin IOT&E. - JSF: Complete EOA and write report. Complete detail planning for and begin combined DT/OT and OA. 		
(U) \$2,170	(U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include: Advanced EHF Satellite Communications (Advanced EHF); Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite (GPS); MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS); Wideband Gap Filler System	

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(WGS); and other systems.</p> <ul style="list-style-type: none"> - Advanced EHF: Complete detailed planning and conduct EOA; write final report. - EELV: Plan and start OA II. - GBS: Plan, conduct, and report on OA. - GPS: Execute combined DT/OT. Advance planning for OA2 - MILSTAR II: Combined DT/OT. Ongoing MOD/SIM efforts. - NPOESS: Plan and execute OA1. - SBIRS: Combined DT/OT on Increment 1; plan and conduct Increment 1 IOT&E. - WGS: Plan and begin execution for OA. <p>(U) \$3,887 (U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include: AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); Joint Air-to-Surface Standoff Missile (JASSM); Joint Standoff Weapon (JSOW); and other systems.</p> <ul style="list-style-type: none"> - AIM-9X: Conduct second phase of combined DT/OT. Detailed planning for MOT&E. - HTSF: Plan and conduct OUE. - JASSM: Conduct OA. Detailed planning for IOT&E. - JSOW: Plan and conduct MOT&E and write final report. <p>(U) \$1,899 (U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, and INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include; Deliberate Crisis Action Planning and Execution System (DCAPES); Distributed Common Ground System (DCGS); Global Air Traffic Management (GATM); Integrated Broadcast System (IBS); Joint Tactical Terminal (JTT); ICBM Minuteman MEECN Program (ICBM MMP); Theater Battle Management - Core Systems (TBM-CS); TRANSCOM Regulating and Command and Control Evacuation System (TRAC2ES); and other systems.</p> <ul style="list-style-type: none"> - DCAPES: Conduct Increment 1 OA. - DCGS: Complete combined DT/OT and execute IOT&E. - GATM: Conduct IOT&E on C-17 platform. Advance planning for IOT&E on KC-135 and KC-10 platforms. - IBS: Planning for OA. - JTT: Planning for MOT&E. 		
Project 0191	Page 5 of 10 Pages	Exhibit R-2 (PE 0605712F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
<ul style="list-style-type: none"> - ICBM MMP: Planning and conduct of IOT&E. - TBM-CS: Conduct DT/OT Versions 1.0.2 and 1.1. - TRAC2ES: Conduct IOT&E. 		
(U) \$2,854	(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include: Common Aircraft Portable Re-Prog Equipment(CAPRE); Common Low Observable Verification System (CLOVerS); Combat Survivor Evader Locator (CSEL); Integrated Logistics System - Supply (ILS-S); Joint Computer Aided Acq and Log Systems (JCALS); Joint Mission Planning System (JMPS); Joint Precision Approach & Landing system (JPALS); Joint Service Electronic Combat System Tester (JSECST); Joint Simulation System (JSIMS); Joint Tactical Combat Training System (JTCTS); Next Generation Small Loader (NGSL); Range Standardization Automation (RSA); and other systems.	
<ul style="list-style-type: none"> - CAPRE: Plan and Conduct IOT&E. - CLOVerS: Complete detailed planning and conduct OUE. - CSEL: Plan, execute, and report on OA. Detailed planning for MOT&E. - ILS-S: Conduct CTF events. Advance planning for IOT&E. - JCALS: Detailed planning for IOT&E on software package 3.1 - JMPS: Conduct EOA. Detailed planning for IOT&E. - JPALS: Planning for EOA. - JSECST: Complete IOT&E and write final report. - JSIMS: Data collection and advance planning for MOT&E. - JTCTS: Conduct OA. Advance planning for MOT&E. - NGSL: Execute IOT&E and write final report. - RSA: Execute incremental OUEs. 		
(U) \$10	(U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.	
<ul style="list-style-type: none"> - Joint Modeling and Simulation System (JMASS): Plan and execute OUE. 		
(U) \$32,933	Total	
The following net transactions are not reflected in the FY01 program total: BTR=-256K These transactions are not reflected in other sections of the R-Docs where an FY 01 total is shown.		
Project 0191	Page 6 of 10 Pages	Exhibit R-2 (PE 0605712F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
(U) A. Mission Description Continued		
(U) FY 2002 (\$ in Thousands)		
(U) \$17,225	<p>(U) CATEGORY: AIR SYSTEMS. Plan, execute, and report IOT&E activities, to include: Airborne Laser (ABL); Advanced Strategic & Tactical IR Expendable (ASTE); B-1B Conventional Mission Upgrade Program (CMUP) BLK E; B-1B CMUP BLK F; B-52 Avionics Mid-Life Improvement (AMI); C-17 GATM; Compass Call; CV-22; F-15 Fiber Optic Towed Decoy (F-15 FOTD); F-22; Global Hawk High Altitude Vehicle (HAV) UAV; Large Aircraft IRCM (LAIRCM); Joint Helmet Mounted Cueing System (JHMCS); Joint Strike Fighter (JSF); Mobile Approach Control System (MACS); and other systems.</p> <ul style="list-style-type: none"> - ABL: Complete EOA2 and issue final report. Continue advance planning for OA and IOT&E. - ASTE: Conduct incremental IOT&E and write final report. - B-1B CMUP Block E: Conduct IOT&E and write final test report. - B-1B CMUP Block F: Complete OA and detailed planning for IOT&E. - B-52 AMI: Detailed planning for IOT&E. - C-17 GATM: Conduct Block 13 OA - Compass Call: Advance planning for Blk 35 IOT&E. - CV-22: Continue combined DT/OT. Complete detailed planning for and conduct CV-22 IOT&E. - F-22: Pilot training; complete detailed planning for and begin IOT&E. - F-15 FOTD: Publish OA; advanced planning for IOT&E. - Global Hawk HAV UAV: Participation in real-world events; detailed planning for IOT&E. - LAIRCM: Plan for IOT&E; conduct combined DT/OT. - JHMCS: Complete IOT&E and write final report. - JSF: Conduct EAO; advanced planning for IOT&E. - MACS: Detailed planning for IOT&E. 	
(U) \$1,912	<p>(U) CATEGORY: SPACE SYSTEMS. Plan, execute, and report IOT&E activities, to include: Advanced EHF Satellite Communications (Advanced EHF); Evolved Expendable Launch Vehicle (EELV); Global Broadcast System (GBS); Global Positioning Satellite (GPS); MILSTAR II; National Polar-Orbit Ops Environment Satellite System (NPOESS); Space Based InfraRed System (SBIRS); Wideband Gap Filler System (WGS); and other systems.</p> <ul style="list-style-type: none"> - Advanced EHF: Advance planning for IOT&E. 	

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605712F Initial Operational Test & Evaluation	0191
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	<ul style="list-style-type: none"> - EELV: Complete OA report. Complete detailed planning for IOT&E. - GBS: Complete MOT&E and write final report. Advance planning for FOT&E. - GPS: Advance planning for OAs. - MILSTAR II: Conduct MOT&E. - NPOESS: Complete detailed planning for and begin OA2. - SBIRS: Continue performing OUEs to support Increment 2 ground system upgrades. - WGS: Complete OA and conduct combined DT/OT. 	
(U) \$7,309	(U) CATEGORY: WEAPONS. Plan, execute, and report IOT&E activities, to include: AIM-9X Air-to-Air Missile; Hard Target Smart Fuse (HTSF); Joint Air-to-Surface Standoff Missile (JASSM); Joint Direct Attack Munition (JDAM) MK 82, and other systems. <ul style="list-style-type: none"> - AIM-9X: Complete DT/OT events; conduct MOT&E and begin writing final report. - HTSF: Complete OUE and write final report. - JASSM: Conduct IOT&E. - JDAM MK 82: Conduct combined DT/OT; advanced planning for IOT&E. 	
(U) \$1,606	(U) CATEGORY: COMMAND, CONTROL, COMMUNICATIONS, COMPUTERS, AND INTELLIGENCE (C4I). Plan, execute, and report IOT&E activities, to include: Deliberate Crisis Action Planning and Execution System (DCAPES); E-3 AWACS Blk 40-45; Integrated Broadcast System (IBS); Joint Tactical Terminal (JTT); NORAD_USSPACECOM Warning Surveillance System (N_UWSS); Theater Battle Management - Core Systems (TBM-CS); and other systems. <ul style="list-style-type: none"> - DCAPES: Conduct Increment 2 IOT&E. - E-3 AWACS Blk 40-45: Conduct EOA. - IBS: Conduct OA. - JTT: Plan and conduct IOT&E. - N_UWSS: Plan and conduct strategic IOT&E. - TBM-CS: Complete testing of Increment 1.1 and MOT&E of version 2.0. 	
(U) \$936	(U) CATEGORY: COMBAT SUPPORT. Plan, execute, and report IOT&E activities, to include: Common Low Observable Verification System (CLOVerS); Combat Survivor Evader Locator (CSEL); Integrated Logistics System - Supply (ILS-S); Joint Computer Aided Acq and Log Systems (JCALS); Joint Mission Planning System (JMPS); Joint Precision Approach & Landing system (JPALS); Joint Tactical Combat	
Project 0191	Page 8 of 10 Pages	Exhibit R-2 (PE 0605712F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																													
BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0605712F Initial Operational Test & Evaluation	PROJECT 0191																																													
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands) Continued</u></p> <p style="padding-left: 40px;">Training System (JTCTS); Range Standardization Automation (RSA); and other systems.</p> <ul style="list-style-type: none"> - CLOVerS: Combined DT/OT; Complete OUE and write final report. - CSEL: Conduct MOT&E and write final report; plan for FOT&E. - ILS-S: Conduct CTF events. Advance planning for IOT&E. - JCALS: Conduct IOT&E on software packages 3.1 and 3.3. - JMPS: Conduct OA and participate in combined DT/OT events. - JPALS: Participate in Combined DT/OT events; detailed planning for MOT&E. - JTCTS: Complete OA and write report. Detailed planning for MOT&E. - RSA: Execute incremental OUEs. <p>(U) \$10 (U) CATEGORY: TEST SUPPORT. Provide test capabilities infrastructure to support OT.</p> <p style="padding-left: 40px;">Joint Modeling and Simulation System (JMASS): Complete OUE; write final report.</p> <p>(U) \$28,998 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program element is in Budget Activity 6, RDT&E Management Support, because it funds weapon system IOT&E tests conducted to evaluate a system's operational effectiveness and suitability and to identify any operational deficiencies or need for modifications in support of the acquisition process.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">23,819</td> <td style="text-align: center;">28,238</td> <td style="text-align: center;">29,464</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">27,219</td> <td style="text-align: center;">33,238</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">a. Congressional/General Reductions</td> <td style="text-align: center;">-303</td> <td></td> <td></td> <td style="text-align: center;">4,767</td> </tr> <tr> <td style="padding-left: 20px;">b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">d. Below Threshold Reprogram</td> <td style="text-align: center;">-9</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="padding-left: 20px;">e. Rescissions</td> <td style="text-align: center;">-106</td> <td style="text-align: center;">-305</td> <td></td> <td style="text-align: center;">-178</td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	23,819	28,238	29,464	TBD	(U) Appropriated Value	27,219	33,238			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-303			4,767	b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-9				e. Rescissions	-106	-305		-178
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>																																											
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Project 0191	Page 9 of 10 Pages	Exhibit R-2 (PE 0605712F)																																													

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
06 - Management and Support				0605712F Initial Operational Test & Evaluation			0191				
(U) C. Program Change Summary (\$ in Thousands) Continued											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
(U)	Adjustments to Budget Years Since FY 2001 PBR					-466		-69			
(U)	Current Budget Submit/FY 2002 PBR			26,801	32,933	28,998		TBD			
(U)	<u>Significant Program Changes:</u>										
	Congressional Action, FY00 plus up of \$3.4M										
	Congressional Action, FY01 plus up of \$5.0M										
(U) D. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Total Cost</u>		
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Cost to Complete</u>		
(U)	N/A										
(U) E. Acquisition Strategy											
	N/A										
(U) F. Schedule Profile											
				<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>			
				1	2	3	4	1	2	3	4
(U)	IOT&E is not an acquisition program.										

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605807F Test and Evaluation Support						
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	377,169	382,663	398,570	378,880	383,526	406,715	409,414	411,116	Continuing	TBD
06TG 46 Test Group	21,209	20,528	21,168	21,495	21,904	22,387	20,246	20,283	Continuing	TBD
06TS Test and Evaluation Support	355,960	362,135	377,402	357,385	361,622	384,328	389,168	390,833	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**
 Test facilities, capabilities and resources operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, maintenance and repair of test facilities, civilian payroll, and contractor services. It also provides resources for maintaining Air Force Materiel Command (AFMC) assigned test and test support coded aircraft. No acquisition contracts are funded from this program; test support contracts for services and supplies and equipment are predominantly awarded on the basis of full and open competition.

(U) **B. Budget Activity Justification**
 This program element is in Budget Activity 6, RDT&E Management Support, because it funds institutional infrastructure resources (civilians, aircraft, facilities and ranges) to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB).

(U) **C. Program Change Summary (\$ in Thousands)**

	FY 2000	FY 2001	FY 2002	Total Cost
(U) Previous President's Budget (FY 2001 PBR)	381,476	386,205	388,017	TBD
(U) Appropriated Value	382,104	386,205		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-1,966	-2,701		
b. Small Business Innovative Research	0	0		
c. Omnibus or Other Above Threshold Reprogram	0			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)				DATE
BUDGET ACTIVITY				June 2001
06 - Management and Support		PE NUMBER AND TITLE		
0605807F Test and Evaluation Support				
(U)	<u>C. Program Change Summary (\$ in Thousands) Continued</u>			
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>
	d. Below Threshold Reprogram	-1,475		
	e. Rescissions	-1,494	-841	
(U)	Adjustments to Budget Years Since FY 2001 PBR			10,553
(U)	Current Budget Submit/FY 2002 PBR	377,169	382,663	398,570
				TBD
(U)	<u>Significant Program Changes:</u>			
	FY02 was increased for regeneration of 14 F-16 Peacegate aircraft for test-support.			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)	DATE June 2001
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BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0605807F Test and Evaluation Support	PROJECT 06TG
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COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
06TG 46 Test Group	21,209	20,528	21,168	21,495	21,904	22,387	20,246	20,283	Continuing	TBD

FY03-FY07 budget numbers do not reflect the DoD strategic review results.

(U) **A. Mission Description**

This project funds institutional test infrastructure support including: Command and supervisory staffs; supply stocks; upkeep, refurbishment, repair, and replacement of non-repairable or obsolete test equipment; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries, utilities, temporary duty travel, support contract costs for hardware and software engineering and maintenance. Project infrastructure support is provided for the unique capabilities of the 46th Test Group (TG) facilities: Central Inertial Guidance Test Facility (CIGTF/746th Test Squadron), the High Speed Test Track (HSTT/846th Test Squadron) and the National Radar Cross Section (RCS) Test Facility (NRTF). CIGTF provides independent assessments of inertial components, aircraft navigation systems, and missile guidance systems. HSTT capabilities include full-scale testing in flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography. NRTF provides radar cross section (RCS) monostatic and bi-static amplitude and phase measurements, antenna pattern measurements, glint and near field measurements for low observable targets. The 46th TG support services contracts are awarded on the basis of full and open competition.

(U) **FY 2000 (\$ in Thousands)**

- (U) \$2,828 Continue institutional test infrastructure support to enable testing for unclassified program such as Miniaturized Airborne Global Positioning Upgrade, Joint Global Positioning System (GPS) Combat Effectiveness, GPS jamming and electronic countermeasures, NAVWAR, FAA, GPS integrated and embedded INS programs, aircraft navigation systems including B-2 and F-22, Munitions navigation systems such as Joint Air-to-Surface Standoff Missile (JASSM), F-22 ejection seat, Advance Concept Ejection Seat (ACES) II Cooperative Modification Project (CMP), SM-3 Live Fire T&E (LFT&E), Theater High Altitude Area Defense (THAAD) LFT&E, Compact Energy Missile (CKEM) LFT&E, RCS testing, as well as multiple classified programs. Continue GPS-JPO Responsible Test Organization (RTO) responsibilities.
- (U) \$11,573 Contractor Services (in-house contract support activities).
- (U) \$6,808 T&E Civilian Pay.
- (U) \$21,209 Total

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605807F Test and Evaluation Support			PROJECT 06TG				
(U) A. Mission Description Continued											
(U) FY 2001 (\$ in Thousands)											
(U)	\$2,735	Continue institutional test infrastructure support to enable testing for unclassified program such as Miniaturized Airborne Global Positioning Upgrade, Joint GPS Combat Effectiveness, GPS jamming and electronic countermeasures, NAVWAR, FAA, GPS integrated and embedded INS programs, aircraft navigation systems including B-2 and F-22, Munitions navigation systems such as JASSM, F-22 ejection seat, ACES II CMP, SM-3 Live Fire T&E (LFT&E), THAAD LFT&E, CKEM LFT&E, RCS testing, as well as multiple classified programs. Continue GPS-JPO Responsible Test Organization (RTO) responsibilities.									
(U)	\$10,283	Contractor Services (in-house contract support activities)									
(U)	\$7,510	T&E Civilian Pay									
(U)	\$20,528	Total									
(U) FY 2002 (\$ in Thousands)											
(U)	\$2,806	Continue institutional test infrastructure support to enable testing for unclassified programs such as Miniaturized Airborne Global Positioning Upgrade, Joint GPS Combat Effectiveness, GPS jamming and electronic countermeasures, NAVWAR, FAA, GPS integrated and embedded INS programs, aircraft navigation systems including B-2 and F-22, Munitions navigation systems such as JASSM, F-22 ejection seat, ACES II Cooperative Modification Project (CMP), SM-3 LFT&E, THAAD LFT&E, CKEM LFT&E, RCS testing, as well as multiple classified programs. Continue GPS-JPO RTO responsibilities.									
(U)	\$10,424	Contractor Services (in-house contract support activities)									
(U)	\$7,938	T&E Civilian Pay									
(U)	\$21,168	Total									
(U) B. Project Change Summary											
(U) Significant Program Changes: None											
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
(U)	Not Applicable										
(U)	Related RDT&E:										
(U)	PE 0604759F, Major T&E Investment (Technical)	0	0	938	1,015	1,095	1,215	299	3,989	TBD	
Project 06TG		Page 4 of 11 Pages					Exhibit R-2A (PE 0605807F)				

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001	
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605807F Test and Evaluation Support					PROJECT 06TG	
(U) C. Other Program Funding Summary (\$ in Thousands)										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
	capability improvement and modernization)									
(U)	PE 0604256F, Threat Simulator	1,843	1,680	2,065	2,136	1,741	1,971	2,132	2,623	TBD
(U)	PE 0604940D, Central Test & Evaluation Improvement Program (T&E) (investments for new tri-service test capabilities). Service programs compete for CTEIP funds on a yearly basis. FY2003 through FY2007 are To Be Determined (TBD).	9,300	4,675	2,000	0	0	0	0	0	TBD
(U)	D. Acquisition Strategy Not applicable									
(U)	E. Schedule Profile									
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>	
				1	2	3	4	1	2	3
(U)	N/A 46TG infrastructure support operations are continuous and are not driven by discrete start/end dates.									

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)									DATE June 2001			
BUDGET ACTIVITY 06 - Management and Support					PE NUMBER AND TITLE 0605807F Test and Evaluation Support					PROJECT 06TS		
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
06TS	Test and Evaluation Support		355,960	362,135	377,402	357,385	361,622	384,328	389,168	390,833	Continuing	TBD
<p>FY03-FY07 budget numbers do not reflect the DoD strategic review results.</p> <p>(U) <u>A. Mission Description</u></p> <p>This project provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance. Test and Evaluation (T&E) Support funds institutional test infrastructure activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds institutional test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base (AFB), TN, whose institutional test infrastructure supports operations of the largest complex of ground test facilities in the free world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose institutional test infrastructure supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, and Electronic Warfare (EW) systems for DoD and allied forces. The AFFTC mission includes the United States Air Force (USAF) Test Pilot School. (3) Air Armament Center (AAC) 46th Test Wing (TW) located at Eglin AFB, FL, is comprised of 724 square miles of land area, and approximately 123,000 square miles of water space. AAC 46TW provides the institutional test infrastructure required for the conduct of developmental and operational test and evaluation of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles); Command, Control, Communications, Computers and Intelligence (C4I) systems; target acquisition and weapon delivery systems; a multi-service climatic simulation capability, and determines target/test item spectral signatures for DOD and allied forces. AAC 46TW provides a scientific test process that supports the development and enhancement of munitions systems that support tri-service smart weapons development. AAC 46TW technology is compatible with weapon systems to be tested such as Advanced Medium Range Air-to-Air Missile (AMRAAM), Joint Direct Attack Munition (JDAM), AGM-130, Advanced Short Range Air-to-Air Missile (ASRAAM), Joint Tactical Information Distribution System (JTIDS), Joint Surveillance Target Attack Radar System (JSTARS), Combat Talon, etc. T&E support services contracts are awarded on the basis of full and open competition.</p>												
Project 06TS			Page 6 of 11 Pages					Exhibit R-2A (PE 0605807F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605807F Test and Evaluation Support	06TS
(U) A. Mission Description Continued		
(U) FY 2000 (\$ in Thousands)		
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)	
(U) \$11,897	Continue institutional test infrastructure support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV, F-18, F404, F414, F119, and Tunnel 9).	
(U) \$20,589	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$92,887	Contractor Services (in-house contract support activities).	
(U) \$10,492	T&E Civilian Pay.	
(U) \$250	NATO Cooperative Research and Development (R&D) efforts in Imaging Spectrometer Development (AEDC/Canada). Continue effort to pool the spatial and spectral advances of both the US and Canada, and develop a high-resolution sensor system capable of characterizing signatures of rockets and aircraft, for drug interdiction, and identifying trace quantities of a broad spectrum of gases in the environment. Previously funded in PE 0603790F, NATO Cooperative R&D.	
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$4,653	Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs. Provide funds for deferred and current equipment requirements.	
(U) \$5,389	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$35,138	Contractor Services (in-house contract support activities).	
(U) \$60,869	T&E Civilian Pay.	
(U) \$36,016	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include deferred and projected programmed depot maintenance, engine overhauls, petroleum, oils and lubricants (POL), increased depot level repairable (DLR) costs and related support.	
(U) \$0	AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)	
(U) \$0	AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)	
(U) \$6,219	Continue institutional test infrastructure support for non-nuclear air armaments (Joint Air-to-Surface Standoff Missile (JASSM), SEEK EAGLE, Wind Corrected Missile Dispenser (WCMD), Enhanced GBU-15, AIM 9X, AMRAAM, Advanced Short Range Air-to-Air Missile (ASRAAM) (Foreign), Hellfire, PATRIOT, Directional Intra-Red Countermeasures (DIRCM), Ammunition for Advance Amphibious Assault Vehicle (AAAV), Unmanned Combat Aerial Vehicle (UCAV), etc.); C2 (Theater Battle Management Core System (TMBCS), Link 16, Base and Installation Security System (BISS), and aircraft software upgrades (Air Force Mission Support System (AFMSS)).	
Project 06TS	Page 7 of 11 Pages	Exhibit R-2A (PE 0605807F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605807F Test and Evaluation Support	06TS
(U) A. Mission Description Continued		
(U) FY 2000 (\$ in Thousands) Continued		
(U) \$5,843	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$20,402	Contractor Services (in-house contract support activities).	
(U) \$37,938	T&E Civilian Pay.	
(U) \$7,378	Aircraft Support (Includes deferred and projected programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support). Fund proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals.	
(U) \$355,960	Total	
(U) FY 2001 (\$ in Thousands)		
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)	
(U) \$18,401	Continue institutional test infrastructure support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, X-37, C-130, AMRAAM, AIM 9X, Minuteman, EELV, THAAD, Titan IV, F-18, F404, F414, F100, F119, and Tunnel 9).	
(U) \$20,833	Utilities and maintenance and repair for test unique infrastructure. Working off backlog of maintenance and repair projects.	
(U) \$92,822	Contractor Services (in-house contract support activities).	
(U) \$11,000	T&E Civilian Pay.	
(U) \$250	NATO Cooperative Research and Development (R&D) efforts in Imaging Spectrometer Development (AEDC/Canada). Continue effort to pool the spatial and spectral advances of both the US and Canada, and develop a high-resolution sensor system capable of characterizing signatures of rockets and aircraft, for drug interdiction, and identifying trace quantities of a broad spectrum of gases in the environment. Previously funded in PE 06063790F, NATO Cooperative R&D.	
(U) \$0		
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$3,287	Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.	
(U) \$4,898	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$26,562	Contractor Services (in-house contract support activities); projects limited due to transition to JTECH contract.	
(U) \$63,194	T&E Civilian Pay (adjusted due to reengineering and privatization efforts).	
(U) \$41,263	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include programmed depot maintenance, engine overhauls, petroleum, oils and lubricants (POL); and related support; includes fuel price increases.	
(U) \$0		
Project 06TS	Page 8 of 11 Pages	Exhibit R-2A (PE 0605807F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605807F Test and Evaluation Support	06TS
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$0	AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)	
(U) \$6,388	Continue institutional test infrastructure support for non-nuclear air armaments (JASSAM, SEEK EAGLE, WCMD, Enhanced Guidance, Bomb Unit (GBU) -15, AIM 9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAV, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS)).	
(U) \$5,843	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$17,740	Contractor Services (in-house contract support activities).	
(U) \$41,352	T&E Civilian Pay.	
(U) \$8,302	Aircraft Support (Includes programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support). Fund proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals.	
(U) \$362,135	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$0	ARNOLD ENGINEERING AND DEVELOPMENT CENTER (AEDC)	
(U) \$3,905	Continue institutional test infrastructure support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, X-37, KC-10, AMRAAM, AIM 9X, Minuteman, EELV, THAAD, Delta IV, F-18, F404, F100, F110, F415, F119, and Tunnel 9).	
(U) \$26,500	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$95,827	Contractor Services (in-house contract support activities).	
(U) \$12,474	T&E Civilian Pay.	
(U) \$0	AIR FORCE FLIGHT TEST CENTER (AFFTC)	
(U) \$1,607	Continue to provide institutional test infrastructure support enabling testing of the B-1B, B-2, B-52, F-16, F-15, F-15E, F-22, F-117, AFTI/F-16, C-17, ATIC, ECCM, EW (B-1B ALQ-161, F-26 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs. No longer maintains ARIA.	
(U) \$4,790	Utilities and maintenance and repair for test unique infrastructure.	
(U) \$32,464	Contractor services (in-house contract support activities)	
(U) \$69,033	T&E Civilian Pay	
(U) \$54,821	Aircraft flying hour costs (to include USAF Test Pilot School) for pilot proficiency for sustained readiness to include programmed depot maintenance (PDM), engine overhauls, petroleum, oils, and lubricants (POL), depot level repairables (DLR) and related support. Includes regeneration effort for 11 F-16 (Peacegate) aircraft authorized by the FY02 Program Decision Memorandum and PBD 822 (dated 12 Jun 01).	
Project 06TS	Page 9 of 11 Pages	Exhibit R-2A (PE 0605807F)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)								DATE June 2001			
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605807F Test and Evaluation Support				PROJECT 06TS			
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2002 (\$ in Thousands) Continued</u>											
(U)	\$0	AIR ARMAMENT CENTER (AAC) 46th Test Wing (TW)									
(U)	\$7,584	Continue institutional test infrastructure support for non-nuclear air armaments (JASSAM, SEEK EAGLE, WCMD, Enhanced GBU-15, AIM 9X, AMRAAM, ASRAAM, Hellfire, PATRIOT, DIRCM, AAV, UCAV, etc.); C2 (TMBCS, Link 16, BISS, and aircraft software upgrades (AFMSS)).									
(U)	\$5,843	Utilities and maintenance and repair for test unique infrastructure.									
(U)	\$21,198	Contractor Services (in-house contract support activities).									
(U)	\$29,852	T&E Civilian Pay. Civilian authorizations moved due to mission change for Command Support Staff.									
(U)	\$11,504	Aircraft Support (Includes programmed depot maintenance; engine overhauls; petroleum, oils and lubricants (POL); and related support). Fund proficiency flying to minimum levels allowing AAC 46TW to meet proficiency flying goals. Includes regeneration effort for 3 F-16 (Peacegate) aircraft authorized by the FY02 Program Decision Memorandum and PBD 822 (dated 12 Jun 01).									
(U)	\$377,402	Total									
(U) <u>B. Project Change Summary</u>											
(U) Significant Program Change: None											
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Not Applicable										
(U)	Related RDT&E:										
(U)	PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)	52,951	66,363	47,540	47,910	57,887	67,107	68,518	67,021		TBD
(U)	PE 0604256F, Threat Simulator Development	22,990	23,272	26,209	27,771	30,578	31,000	31,442	31,645		TBD
(U)	PE 0604940D, Central Test & Evaluation Improvement Program (T&E) (investments)	32,419	36,968	32,048	20,969	20,438	15,269				TBD
Project 06TS											

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)							DATE June 2001				
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605807F Test and Evaluation Support				PROJECT 06TS			
(U) C. Other Program Funding Summary (\$ in Thousands)											
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>	
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>		
for new tri-service test capabilities). Service programs compete for CTEIP funds on a yearly basis. FY2006 and FY2007 are To Be Determined (TBD).											
(U) D. Acquisition Strategy											
Not applicable.											
(U) E. Schedule Profile											
				<u>FY 2000</u>			<u>FY 2001</u>		<u>FY 2002</u>		
				1	2	3	4	1	2	3	4
(U) N/A											
Most T&E test infrastructure overhead requirements are continuous and are not driven by discrete start/end dates.											

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605854F Pollution Prevention					PROJECT 1007		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1007	Pollution Prevention	2,437	0	0	0	0	0	0	0	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>All funds were transferred from PE 65854F, Budget Activity 6 (Management & Support) to PE 63859F, Budget Activity 4 (Demonstration and Validation) beginning in FY01 to reflect the primary purpose of the funding profile.</p> <p>(U) <u>A. Mission Description</u> Beginning in FY99, all funds for Test Facility base operations support (RDT&E) were transferred to the Operations and Maintenance (O&M) appropriation. Remaining RDT&E funds were for development and test efforts to validate and qualify environmentally acceptable materials and processes to replace existing common hazardous materials and processes, cross-cutting weapons systems pollution prevention tools, and management and support costs in direct support of development efforts to meet compliance problems.</p> <p>FY00 funds target efforts that demonstrate and validate alternate aircraft painting/depainting, maintenance processes which reduce the compliance burden associated with National Emissions Standard for Hazardous Air Pollutants (NESHAP), Clean Air Act and other environmental requirements. Specifically, funds will target pollution prevention technologies, including replacement of chromate conversion coating on aluminum and magnesium based metals, nonchromated primers to replace zinc chromate, and environmentally safe replacement for cadmium plating.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$493 Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste (U) \$98 Resource Conservation and Recovery Act (RCRA) Subtitle D - Solid Waste (U) \$877 Clean Air Act (U) \$229 Clean Water Act (U) \$535 Hazardous Material Reduction (U) \$205 Other (U) \$2,437 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$0 No Activity (U) \$0 Total</p>											
Project 1007		Page 1 of 3 Pages					Exhibit R-2 (PE 0605854F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001																																																																																																															
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605854F Pollution Prevention			PROJECT 1007																																																																																																															
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$0 No Activity</p> <p>(U) \$0 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Activity (BA) 6, Management and Support, because the majority of funding is directed toward support of test facilities required for general research and development use. Beginning in FY99, all O&M funds for test facility operations were transferred to O&M accounts. Action to change to BA 4, Demonstration and Validation, is complete and all remaining funds in this account were transferred to PE 63859F in FY01, as they are primarily for RDT&E Dem/Val of pollution prevention technologies.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:60%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: right;">2,553</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: right;">2,553</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: right;">-1</td> <td></td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td style="text-align: right;">-38</td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: right;">-16</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td style="text-align: right;">-61</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: right;">2,437</td> <td></td> <td></td> <td style="text-align: right;">TBD</td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u></p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:15%;"></th> <th style="text-align: right;"><u>FY 2000</u></th> <th style="text-align: right;"><u>FY 2001</u></th> <th style="text-align: right;"><u>FY 2002</u></th> <th style="text-align: right;"><u>FY 2003</u></th> <th style="text-align: right;"><u>FY 2004</u></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> <th style="text-align: right;"><u>Cost to</u></th> <th style="text-align: right;"><u>Total Cost</u></th> </tr> <tr> <td></td> <th style="text-align: right;"><u>Actual</u></th> <th style="text-align: right;"><u>Estimate</u></th> <th style="text-align: right;"><u>Complete</u></th> <td></td> </tr> </thead> <tbody> <tr> <td>(U) AF RDT&E</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td style="text-align: right;">TBD</td> </tr> <tr> <td>(U) Other APPN</td> <td></td> </tr> <tr> <td> Not Applicable</td> <td></td> </tr> </tbody> </table>										<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	2,553				(U) Appropriated Value	2,553				(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-1				b. Small Business Innovative Research					c. Omnibus or Other Above Threshold Reprogram	-38				d. Below Threshold Reprogram					e. Rescissions	-16				(U) Adjustments to Budget Years Since FY 2001 PBR	-61				(U) Current Budget Submit/FY 2002 PBR	2,437			TBD		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>		(U) AF RDT&E										TBD	(U) Other APPN											Not Applicable																
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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001	
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)					PROJECT 1023	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
1023 Rocket System Launch Program (RSLP)	7,288	7,834	8,538	8,186	8,355	8,530	9,132	9,554	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>FY02: A new task to develop a Global Positioning System (GPS) based tracking system for use on RSLP-sponsored ballistic missile launch vehicles initiated with this President's Budget Submission.</p> <p>FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.</p> <p>(U) <u>A. Mission Description</u> Rocket System Launch Program (RSLP) is tasked to provide Research, Development, Test and Evaluation (RDT&E) launch vehicle support to DOD and other government agencies using excess ballistic missiles assets. RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposal, maintenance and logistics support for selected DOD RDT&E launches. Costs directly attributable to a specific launch or program are paid by the user (Air Force, Navy, Army, Ballistic Missile Defense Organization (BMDO), etc.). RSLP maintains exclusive control of deactivated Minuteman assets used in government testing to include refurbishment, transportation and handling, storage, as well as logistics and launch services. RSLP also performs general research and development for launch support operations.</p> <p>(U) <u>FY 2000 (\$ in Thousands)</u> (U) \$6,157 Continued storage and refurbishment of deactivated Minuteman and other missile flight test assets. (U) \$1,131 Continued performing aging surveillance-related activities on stored motors; continued performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors. (U) \$0 Continued providing launch assets and technical assistance for DOD RDT&E launches. (Funded by users.) (U) \$7,288 Total</p> <p>(U) <u>FY 2001 (\$ in Thousands)</u> (U) \$6,228 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets. (U) \$1,606 Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors. (U) \$0 Continue providing launch assets and technical assistance for DOD RDT&E launches. (Funded by users.)</p>										
Project 1023			Page 1 of 3 Pages				Exhibit R-2 (PE 0605860F)			

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001																																																							
BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)	PROJECT 1023																																																							
<p>(U) <u>A. Mission Description Continued</u></p> <p>(U) <u>FY 2001 (\$ in Thousands) Continued</u></p> <p>(U) \$7,834 Total</p> <p>The following net transactions are not reflected in the FY01 program total: BTR = -\$36K and SBIR = -\$432K. These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.</p> <p>(U) <u>FY 2002 (\$ in Thousands)</u></p> <p>(U) \$6,485 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets and perform research and development support operations as required.</p> <p>(U) \$1,553 Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.</p> <p>(U) \$500 Begin development of GPS Metric Tracking capability for use on RSLP launch vehicles.</p> <p>(U) \$0 Continue providing launch assets and technical assistance for DOD RDT&E launches. (Funded by users.)</p> <p>(U) \$8,538 Total</p> <p>(U) <u>B. Budget Activity Justification</u></p> <p>This program is in Budget Activity 06 - Management and Support because RSLP provides research and development effort and/or operations support for general research and development use.</p> <p>(U) <u>C. Program Change Summary (\$ in Thousands)</u></p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 10%; text-align: center;"><u>FY 2000</u></th> <th style="width: 10%; text-align: center;"><u>FY 2001</u></th> <th style="width: 10%; text-align: center;"><u>FY 2002</u></th> <th style="width: 10%; text-align: center;"><u>Total Cost</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget (FY 2001 PBR)</td> <td style="text-align: center;">7,732</td> <td style="text-align: center;">7,906</td> <td style="text-align: center;">8,015</td> <td style="text-align: center;">TBD</td> </tr> <tr> <td>(U) Appropriated Value</td> <td style="text-align: center;">7,913</td> <td style="text-align: center;">7,906</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Appropriated Value</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> a. Congressional/General Reductions</td> <td style="text-align: center;">-62</td> <td style="text-align: center;">-55</td> <td></td> <td></td> </tr> <tr> <td> b. Small Business Innovative Research</td> <td style="text-align: center;">-250</td> <td></td> <td></td> <td></td> </tr> <tr> <td> c. Omnibus or Other Above Threshold Reprogram</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> d. Below Threshold Reprogram</td> <td style="text-align: center;">-282</td> <td></td> <td></td> <td></td> </tr> <tr> <td> e. Rescissions</td> <td style="text-align: center;">-31</td> <td style="text-align: center;">-17</td> <td></td> <td></td> </tr> <tr> <td>(U) Adjustments to Budget Years Since FY 2001 PBR</td> <td></td> <td></td> <td style="text-align: center;">523</td> <td></td> </tr> <tr> <td>(U) Current Budget Submit/FY 2002 PBR</td> <td style="text-align: center;">7,288</td> <td style="text-align: center;">7,834</td> <td style="text-align: center;">8,538</td> <td style="text-align: center;">TBD</td> </tr> </tbody> </table>				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>	(U) Previous President's Budget (FY 2001 PBR)	7,732	7,906	8,015	TBD	(U) Appropriated Value	7,913	7,906			(U) Adjustments to Appropriated Value					a. Congressional/General Reductions	-62	-55			b. Small Business Innovative Research	-250				c. Omnibus or Other Above Threshold Reprogram					d. Below Threshold Reprogram	-282				e. Rescissions	-31	-17			(U) Adjustments to Budget Years Since FY 2001 PBR			523		(U) Current Budget Submit/FY 2002 PBR	7,288	7,834	8,538	TBD
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Project 1023	Page 2 of 3 Pages	Exhibit R-2 (PE 0605860F)																																																							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE June 2001
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BUDGET ACTIVITY 06 - Management and Support	PE NUMBER AND TITLE 0605860F Rocket Systems Launch Program (RSLP)	PROJECT 1023
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(U) **C. Program Change Summary (\$ in Thousands) Continued**

(U) **Significant Program Changes:**

FY00: Reprogrammings of \$282K supported higher AF priorities. Data reduction/analysis in support of aging surveillance activities was reduced.

FY01:

- The following net transactions are not reflected in the FY01 Program Total: BTR = -\$36K and SBIR = -\$432K.

- Aging surveillance activities will be reduced; although all planned testing will be accomplished and data collected/archived, only limited data reduction/analysis will be performed.

FY02:

- Task to develop a GPS-based range instrumentation package for use on RSLP-sponsored launch vehicles is a new start initiated with this President's Budget Submission.

-Adjustment of \$500K in FY02 funds this task.

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Complete</u>							
(U) Other APPN										
(U) None										
(U) Related RDT&E, AF										
PE 0603851F, ICBM - Dem/Val, BPAC 641023, Rocket System Launch Program (A&AS) (BA-04, R-047)										
PE 0604851F, ICBM - EMD, BPAC 655007, GPS Metric Tracking (BA-05, R-087)										
PE 0604853F, EELV (GPS Metric Tracking) (BA-05, R-088)										

(U) **E. Acquisition Strategy**

Not Required.

(U) **F. Schedule Profile**

	<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Not Required												

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605864F Space Test Program					PROJECT 2617		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
2617	Free-Flyer Spacecraft Missions	44,769	46,050	50,523	54,663	54,247	55,881	57,018	58,229	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07: This administration has not addressed FY 2003-2007 requirements. All FY 2003-2007 budget estimates included in this book are notional only and subject to change.

(U) **A. Mission Description**

(U) The Space Test Program (STP) conducts space test missions for the purpose of advancing DoD space technology and enabling future US space superiority. The program flies the maximum number of DoD experiments consistent with priority, opportunity, and funding. STP missions are the most cost effective way to flight test new space system technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Develop a knowledge base from which to plan new and improved operational systems and system upgrades
- Develop and test advanced launch vehicle technologies and capabilities

(U) The Secretary of Defense issued a policy statement in November 1995 reaffirming STP's role as the primary provider of spaceflight for the entire DoD space research community. The USAF is the DoD steward, providing spaceflight for experiments with military relevance from the services as well as from BMDO, DARPA, DoE and other government organizations. Partnership opportunities with these organizations and with NATO defense organizations further reduce the cost of these space flights to the DoD and the USAF. The Air Force requires a stable funding level and the flexibility necessary to take advantage of whatever means of spaceflight is deemed to be the most cost effective for a given experiment or complement of experiments.

(U) STP has a constantly evolving mission portfolio, whereby space experiments and technology payloads are selected for spaceflight from the most recent list approved by the DoD Space Experiments Review Board (SERB). STP is authorized to initiate new missions from the prioritized, SERB-approved list. Selection of the most appropriate spaceflight mode for a payload is dependent on optimizing the combination of SERB list priority, timing and readiness of experiments, launch opportunity, and availability of funding. STP support for these payloads includes some or all of the following: acquisition of a dedicated satellite and launch vehicle; integration

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	0605864F Space Test Program	2617
<p>(U) <u>A. Mission Description Continued</u> onto a host satellite, launch booster, the shuttle or space station; funding for the launch and initial operations for approximately one year. This flexible approach is essential to take advantage of inexpensive 'target of opportunity' space hardware, including operational spacecraft, and ensures the maximum amount of DoD space research is accomplished with the limited funds available.</p> <p>(U) STP may act as the DoD's office of primary responsibility for non-SERB secondary payload access to space and excess performance margin on DoD launch vehicles, on a reimbursable basis.</p>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$7,893	Conducted piggyback/secondary payload missions & mission planning; provided technical support, mission and program support	
(U) \$2,305	Conducted Space Shuttle payload integration, analysis, pre- and post-launch processing, and on-orbit support	
(U) \$470	Initiated space missions (including planning and source selection activities) using experiments from the current SERB list, such as C/NOFS	
(U) \$34,101	Continued space experiment missions from current and prior SERB lists - for example : CORIOLIS, launch MTI, operations for ARGOS, launch/operations for TSX-5 and MightySat II.1	
(U) \$44,769	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$8,456	Conduct piggyback/secondary payload missions & mission planning; provide technical support, mission and program support	
(U) \$2,269	Conduct Space Shuttle payload integration, analysis, pre- and post-launch processing, and on-orbit support	
(U) \$8,573	Initiate space missions (including planning and source selection activities) using experiments from the current SERB list, such as CMEWS & STP EELV	
(U) \$26,752	Continue space experiment missions from current and prior SERB lists - for example : CORIOLIS, Kodiak Star (PICOSat), C/NOFS and operations for TSX-5 and MightySat II.1	
(U) \$46,050	Total	
The following net transactions are not reflected in the FY01 Program Total : BTR of (-\$1,531K) and SBIR of (-\$254K). These transactions are not reflected in other sections of the R-Docs where an FY01 total is shown.		
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$8,158	Conduct piggyback/secondary payload missions & mission planning; provide technical support, mission and program support	
(U) \$3,300	Conduct Space Shuttle payload integration, analysis, pre- and post-launch processing, and on-orbit support	
(U) \$5,414	Initiate space missions (including planning and source selection activities) using experiments from the current SERB list e.g. STPSat-1	
(U) \$33,651	Continue space experiment missions from current and prior SERB lists- for example: CORIOLIS, C/NOFS, CMEWS, STP-EELV and	
Project 2617	Page 2 of 4 Pages	Exhibit R-2 (PE 0605864F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
06 - Management and Support				0605864F Space Test Program			2617				
(U) <u>A. Mission Description Continued</u>											
(U) <u>FY 2002 (\$ in Thousands) Continued</u>											
operations for Kodiak Star (PICOSat)											
(U) \$50,523 Total											
(U) <u>B. Budget Activity Justification</u>											
STP is in Budget Activity 6, RDT&E Management and Support, because it supports RDT&E satellite launches.											
(U) <u>C. Program Change Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Total Cost</u>						
(U)	Previous President's Budget (FY 2001 PBR)	50,402	46,476	50,576	TBD						
(U)	Appropriated Value	51,658	46,476								
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions	-484	-325								
	b. Small Business Innovative Research	-1,637									
	c. Omnibus or Other Above Threshold Reprogram	-2,875									
	d. Below Threshold Reprogram	-1,691									
	e. Rescissions	-202	-101								
(U)	Adjustments to Budget Years Since FY 2001 PBR			-53							
(U)	Current Budget Submit/FY 2002 PBR	44,769	46,050	50,523	TBD						
(U) <u>Significant Program Changes:</u>											
The STRIPE mission was cancelled during FY00 due to non-STP experiment funding limitations and the funds were used for other experimental missions on the annual SERB list (C/NOFS and Kodiak Star).											
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Related Procurement:										
(U)	MPAF (PE 0305953F, Evolved Expendable Launch Vehicle) (BA-5, P-28)			75,000							

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE June 2001			
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0605864F Space Test Program				PROJECT 2617		
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
<p>The \$75M in FY03 funds the FY05 dedicated STP EELV flight (experiments will be selected from the SERB list). Experiments may also be funded in other Science and Technology (S&T) PEs in Air Force, Army, Navy, DARPA, BMDO, DoE, NASA, and other programs.</p>										
(U) <u>E. Acquisition Strategy</u>										
Not Required										
(U) <u>F. Schedule Profile</u>										
		<u>FY 2000</u>				<u>FY 2001</u>			<u>FY 2002</u>	
		1	2	3	4	1	2	3	4	
(U) N/A										

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING						PROJECT 4980	
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4980	Research and Development of Computer Forensic Analyst Tools	0	0	309	314	320	327	333	340	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

FY03-FY07 budget numbers do not reflect DoD's strategic review results.

(U) A. Mission Description

The Deputy Secretary of Defense established both the DoD Computer Forensic Laboratory (DCFL) and Defense Computer Investigations training Program (DCITP) by signing Defense Reform Initiative Directive (DRID #27) on 10 Feb 98. The Air force is designated as executive agency. To achieve this goal the DCFL Research and Development Program has the following objectives: Develop an all-purpose high performance media analysis workstation, develop decryption and password cracking/bypass tools, develop tools to detect and extract hidden (stenographic) information, and develop forensic examiners next generation intrusion analysis tools.

(U) FY 2000 (\$ in Thousands)

(U) \$0 No Activity

(U) \$0 Total

(U) FY 2001 (\$ in Thousands)

(U) \$0 No Activity

(U) \$0 Total

(U) FY 2002 (\$ in Thousands)

(U) \$25 Next Generation Intrusion and Analysis Tools

(U) \$142 Next Generation Data Analysis Tools

(U) \$142 High Performance Media Analysis Workstations

(U) \$309 Total

(U) B. Budget Activity Justification

This program is in budget activity 6 - Management and Support because the funding is directed toward support of next generation media analysis workstations.

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001						
BUDGET ACTIVITY 06 - Management and Support						PE NUMBER AND TITLE 0804731F GENERAL SKILL TRAINING					PROJECT 4980						
(U) C. Program Change Summary (\$ in Thousands)																	
						<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>			<u>Total Cost</u>						
(U)	Previous President's Budget (FY 2001 PBR)							309									
(U)	Appropriated Value																
(U)	Adjustments to Appropriated Value																
	a. Congressional/General Reductions																
	b. Small Business Innovative Research																
	c. Omnibus or Other Above Threshold Reprogram																
	d. Below Threshold Reprogram																
	e. Rescissions																
(U)	Adjustments to Budget Years Since FY 2001 PBR																
(U)	Current Budget Submit/FY 2002 PBR							309			TBD						
(U)	<u>Significant Program Changes:</u>																
	Established RDT&E program at DCFL																
(U) D. Other Program Funding Summary (\$ in Thousands)																	
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>						
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>							
(U)	AF RDT&E																
(U)	Other APPN																
	NA																
(U) E. Acquisition Strategy																	
	All major contracts were awarded sole source contract due to the sensitivity of the technologies involved.																
(U) F. Schedule Profile																	
						<u>FY 2000</u>				<u>FY 2001</u>					<u>FY 2002</u>		
						1	2	3	4	1	2	3	4	1	2	3	4
(U)	NA											X					

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE
June 2001

BUDGET ACTIVITY			PE NUMBER AND TITLE							PROJECT	
06 - Management and Support			0909980F JUDGEMENT FUND REIMBURSEMENT							0JFR	
COST (\$ in Thousands)	FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost	
0JFR AC-130U CLAIM	0	0	10,000	20,000	45,500	100,000	0	0	0	175,500	
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0	

FY03-07 budget numbers do not reflect the DoD strategy review results.

(U) A. Mission Description

Funding is for repayment of Treasury Judgment Fund for contractor claim against the Air Force for the AC-130H Gunship. Air Force and Boeing settled the claim for \$295 million, split between 3600 and 3010, through the Alternate Dispute Resolution process. The contractor was paid the settlement in FY1999 and the Air Force is reimbursing the Treasury Fund annually from amounts budgeted for that purpose.

(U) FY 2000 (\$ in Thousands)

(U) \$0 No Activity

(U) \$0 Total

(U) FY 2001 (\$ in Thousands)

(U) \$0 No Activity

(U) \$0 Total

(U) FY 2002 (\$ in Thousands)

(U) \$10,000 Reimburse Treasury Judgement Fund

(U) \$10,000 Total

(U) B. Budget Activity Justification

This program element is in Budget Activity 6, RDT&E Management Support, because it funds infrastructure resources (civilians, aircraft, facilities and ranges)

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)											DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support						PE NUMBER AND TITLE 0909980F JUDGEMENT FUND REIMBURSEMENT					PROJECT 0JFR		
(U) C. Program Change Summary (\$ in Thousands)													
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>		<u>Total Cost</u>	
(U)	Previous President's Budget (FY 2001 PBR)												
(U)	Appropriated Value												
(U)	Adjustments to Appropriated Value												
	a. Congressional/General Reductions												
	b. Small Business Innovative Research												
	c. Omnibus or Other Above Threshold Reprogram												
	d. Below Threshold Reprogram												
	e. Rescissions												
(U)	Adjustments to Budget Years Since FY 2001 PBR									10,000			
(U)	Current Budget Submit/FY 2002 PBR									10,000	175,500		
(U)	<u>Significant Program Changes:</u>												
(U) D. Other Program Funding Summary (\$ in Thousands)													
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>		
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>			
(U)	AF RDT&E												
(U)	Other APPN												
(U) E. Acquisition Strategy													
	Repayment of Treasury Judgment Fund for contractor claim against the Air Force												
(U) F. Schedule Profile													
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>			
						1	2	3	4	1	2	3	4
(U)	Reimburse Treasury Judgment Fund												
											X		

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support				PE NUMBER AND TITLE 1001004F International Activities					PROJECT 4645		
COST (\$ in Thousands)		FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4645	International Cooperative Research & Development	3,572	3,739	3,846	3,887	3,969	4,051	4,180	4,269	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0
<p>(U) <u>A. Mission Description</u> The mission of this program is to gain access to our Allies' best defense technologies, eliminate costly duplication of research and development (R&D) efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development (ICR&D).</p> <p>The USAF is party to multiple international cooperative agreements to solve common US and Allied military scientific and technological problems and to develop materiel solutions to harmonize coalition requirements. This program funds the USAF to support, develop, process, negotiate, implement, and manage these international cooperative agreements and projects in compliance with statutory reporting provisions and exacting legal statutes, fiscal constraints, technology transfer controls, intellectual property rights, third party transfer provisions, quid-pro-quo criteria, industrial base factors, and political-military interests. Included in this budget are domestic and international technology assessment teams; specialized working groups; long-term technology project (LTTP) developments; support for cooperative opportunity assessments; developing, processing, negotiating and managing international agreements; oversight of ICR&D projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; Engineering and Scientist Exchange Program (ESEP); and Administrative and Professional Exchange Program (APEP). Funds USAF participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).</p>											
<p>(U) <u>FY 2000 (\$ in Thousands)</u></p> <p>(U) \$100 NATO Command, Control, and Communications Agency (NC3A) - Funded the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative R&D activities.</p> <p>(U) \$243 ESEP - Funded the USAF execution and the management oversight of ESEP. Funded ten field level military and civilian scientists from Air Force Research Laboratory (AFRL), Product Centers, Test Centers and Air Logistics Centers (ALCs) in two year tours at selected European and Asian government research laboratories or other technical institutions. Current ESEP agreements with 14 countries.</p> <p>(U) \$1,304 ICR&D - Funded USAF overseas R&D liaison offices. Funded management support and oversight of USAF FCT Program and NATO Cooperative R&D Program. Funded USAF participation at the NATO Four-Power Forum, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funded USAF participation at the US-Japan Systems and Technology Forum and its four sub-groups. Funded expanded technology acquisition contracts and follow-on cooperative opportunities with</p>											
Project 4645		Page 1 of 7 Pages					Exhibit R-2 (PE 1001004F)				

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
BUDGET ACTIVITY 06 - Management and Support		June 2001
PE NUMBER AND TITLE 1001004F International Activities		PROJECT 4645
(U)	<u>A. Mission Description Continued</u>	
(U)	<u>FY 2000 (\$ in Thousands) Continued</u>	
(U)	\$250	Russia, Ukraine, and Eastern Europe. Partially funded technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funded upgrades to the DoD International Agreements Management System. Funded development of phase 1 of the USAF Cooperative Integrated Programs Management System (CPIMS). Funded preliminary and negotiation costs associated with USAF NATO Cooperative R&D funded programs and support for the NATO AWACS Board of Directors. Funded International Cooperative Opportunities Group (ICOG) efforts to harmonize Four-Power requirements and initiate agreements to explore these opportunities. Air Force International Programs Support Office (AFIPSO) - Funded AFIPSO to process proposals for ICR&D agreements. The following is a partial list of agreements that have been either signed or started development in FY00: Australia: APEP, Refractive Turbulence, Precision Location and Identification, Small Smart Bomb, Scintillation Impacts on Communications and Navigation Systems; Bolivia: Seismic Monitoring; Brazil: Atmospheric, Ionospheric and Magnetospheric, ESEP; Central African Republic: Seismic Monitoring; Chile: Ionospheric Research, Infrasonic Monitoring; Canada: Distributed Mission Training Technologies; Czech Republic: ESEP; Egypt: Technology Research and Development Projects (TRDP), Nuclear Test Seismic Monitoring Array; Ethiopia: Seismic Monitoring; Germany: APEP, Observations and Modeling for Space Weather, Head Mounted Display; Israel: Aircraft and Battle Damage Repair; Italy: ESEP, Real-Time Information in the Cockpit, TRDP; Japan: Fiber-reinforced Ceramic Matrix Composites, ESEP; Korea: ESEP, Seismic Monitoring; Norway: Low Cost Autonomous Attack System Advanced Technology Demonstration, Global Positioning System Handheld Equipment; Paraguay: Seismic Monitoring; Poland: ESEP; Sweden: Human Centered Controls and Displays, ESEP, Command and Control; Turkey: Seismic Monitoring; South Africa: Seismic Monitoring; United Kingdom: International Collaboration on Space Radiation Sensors, Chemical Agent Monitors; Multi-lateral: Refraction and Propagation Modeling, LTTP: Aging Aircraft, Unmanned Air Vehicles for Offensive Missions, Air Refueling Technologies.
(U)	\$225	NATO RTO - Funded USAF participation in the NATO RTO panel activities. The FY00 program consisted of studies, technical exchanges, and reports in the following areas: (1) Application of Unmanned Air Vehicles, (2) System Concepts for Targets and Camouflage and Decoys, (3) High Power Microwaves, (4) Electronic Warfare Warning Systems, (5) Flight Test Measurement Techniques, (6) Electromagnetic Compatibility, (7) Hypersonic Propulsion, (8) Wind Tunnel Technology, (9) Screening for Aero Medical Medications, (10) Human Factors in Virtual Reality Applications. Continued Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.
(U)	\$1,450	Air Force Materiel Command (AFMC) - Funded AFMC to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supported AFMC activities in association with the USAF FCT and NATO Cooperative R&D programs. Funded USAF participation in panel meetings of The Technical Cooperation Program (TTCP), Air Standardization Coordinating Committee, NATO Working Groups, and other NATO forums. Funded periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funded
Project 4645		Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	1001004F International Activities	4645
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands) Continued</u>		
	the project engineers at centers and AFRL for identifying, creating and staffing new international cooperative agreements. Funded MAJCOM staff to support and promote ICR&D throughout AFMC. Funded support for the USAF Technology Booth at International Airshows. Funded small contracts in support of technology initiatives.	
(U) \$3,572	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$100	NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative R&D activities.	
(U) \$170	ESEP/APEP - Funds the USAF execution and the management oversight of ESEP and APEP agreements. Funds approximately eight field level military and civilians from AFRL, Product Centers, Test Centers and ALCs in two year tours at selected European and Asian government laboratories or other institutions. ESEP agreements are signed with 14 countries and under negotiation with 5 other countries. 1 APEP agreement has been signed with 2 other countries under negotiation.	
(U) \$2,129	ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of International Affairs Armaments Cooperation Division (SAF/IAPQ), AFMC, FCT and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-Power Forum, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and Defense Cooperation Committee Meetings with Singapore and South Korea. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds upgrades to the DoD International Agreements Management System. Funds continued development of phase 1 of the USAF CPIMS. Funds negotiation and support costs associated with the NATO AWACS Board of Directors. Funds ICOG efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.	
(U) \$400	Armaments Cooperation - Funds the USAF to process the rapidly increasing number of proposals for ICR&D agreements. Work will continue on agreements developed, but not signed, during FY00 and work will be initiated in the following areas of interest and others resulting from prior year technology assessments: Asia: Unmanned Aerial Vehicles, Early Warning Systems, Theater Missile Defense, Satellites, Command, Control, Communication, Computer, Information and Intelligence, Effects on Global Positioning Systems; Europe: Distributed Simulation Technology, Unmanned Aerial Vehicles, Aging Aircraft, Programmable Integrated Ordinance Suite, Agent Defeat Weapon, Joint Targeting Tool, Satellites, Space, Environmental Issues; Middle East: Intelligence, Sensors, Monitoring of Chemical/Biological Warfare; Central and South America: Monitoring of Chemical/Biological Warfare, Satellites, Space, Environmental Issues.	
Project 4645	Page 3 of 7 Pages	Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE
		June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	1001004F International Activities	4645
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2001 (\$ in Thousands) Continued</u>		
(U) \$200	NATO RTO - Funds USAF participation in the NATO RTO panel activities. The FY01 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Operational and Technical Studies and Analysis, (2) Modeling and Simulation, (3) Advanced System Concepts, Integration and Engineering Techniques Across the Spectrum of Platforms and Operating Environments, (4) Affordable Electronics, (5) Active and Passive Sensors, (6) Information Warfare Systems, (7) Communication and Networks, (8) Improved Performance, Affordability, and Safety of Vehicle, Platform, Propulsion, and Power Systems, (9) Optimize Performance, Health, Well Being and Safety of the Human in Operational Environments with consideration of Affordability. Continues Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.	
(U) \$740	AFMC - Funds AFMC activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supports AFMC activities for the NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of TTCP, Air Standardization Coordinating Committee, and NATO forums. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and AFRL for identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote ICR&D throughout AFMC. Funds support for the USAF Technology Booth at International Airshows. Funds small contracts in support of technology initiatives.	
(U) \$3,739	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$100	NC3A - Funds the US R&D Coordination Office and administrative support for the assigned US Engineering and Technical professionals and cooperative Research and Development activities assigned to the NC3A.	
(U) \$243	ESEP/APEP - Funds the USAF execution and the management oversight of ESEP and APEP agreements. Funds approximately eight field level military and civilian scientists from AFRL, Product Centers, Test Centers and ALCs in two year tours at selected European and Asian government laboratories or other institutions. ESEP agreements will be signed with 16 countries and under negotiation with 3 other countries. 2 APEP agreement will signed with 2 other countries under negotiation.	
(U) \$2,178	ICR&D - Funds USAF overseas R&D liaison offices. Funds management support and oversight of International Affairs Armaments Cooperation Division (SAF/IAPQ), AFMC, FCT and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-Power Forum, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum and Defense Cooperation Committee Meetings with Singapore and South Korea. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe.	
Project 4645	Page 4 of 7 Pages	Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		DATE June 2001
BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
06 - Management and Support	1001004F International Activities	4645
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2002 (\$ in Thousands) Continued</u>		
	Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds upgrades to the DoD International Agreements Management System. Funds continued development of phase 2 of the USAF CPIMS. Funds negotiation and support costs associated with the NATO AWACS Board of Directors. Funds ICOG efforts to harmonize Four-power requirements and initiate agreements to explore these opportunities.	
(U) \$400	Armaments Cooperation - Funds the USAF to process the rapidly increasing number of proposals for ICR&D Agreements. Work will continue on agreements developed, but not signed, during FY01 and work will be initiated in the following areas: Asia: Unmanned Aerial Vehicles, Early Warning Systems, Theater Missile Defense, Satellites, Command, Control, Communication, Computer, Information and Intelligence, Effects on Global Positioning Systems; Europe: Distributed Simulation Technology, Unmanned Aerial Vehicles, Aging Aircraft, Programmable Integrated Ordinance Suite, Agent Defeat Weapon, Joint Targeting Tool, Satellites, Space, Environmental Issues; Middle East: Intelligence, Sensors, Monitoring of Chemical/Biological Warfare; Central and South America: Monitoring of Chemical/Biological Warfare, Satellites, Space, Environmental Issues.	
(U) \$175	NATO RTO - Funds USAF participation in the NATO RTO activities. The FY02 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Vehicle and Platform, (2) Propulsion and Power, (3) Human Protection in Adverse Environments, (4) Operational Medicine, (5) Information Warfare and Assurance, (6) Information and Knowledge, (7) Modeling and Simulation, (8) Systems Architecture/ Mechanization, (9) Mission Management, (10) Phenomenology, and (11) Sensors, Electronics, Processing and Components. Continues Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the former Soviet Union and Central Europe.	
(U) \$750	AFMC - Funds AFMC activities to identify, assess, develop, and report International Cooperative Agreements as required by statute for new and existing projects. Supports AFMC activities for the USAF NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of TTCP, Air Standardization Coordinating Committee, NATO Working Groups, and other NATO forums. Funds periodic bilateral/multilateral meetings to define new areas of possible cooperation and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and AFRL for identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote ICR&D throughout AFMC. Funds support for the USAF Technology Booth at International Airshows. Funds small contracts in support of technology initiatives.	
(U) \$3,846	Total	
Project 4645	Page 5 of 7 Pages	Exhibit R-2 (PE 1001004F)

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE				
							June 2001				
BUDGET ACTIVITY				PE NUMBER AND TITLE			PROJECT				
06 - Management and Support				1001004F International Activities			4645				
(U) <u>B. Budget Activity Justification</u>											
This program is in Budget Activity 6, Management and Support, because it provides for general R&D Management support for all aspects of ICR&D activities in the USAF.											
(U) <u>C. Program Change Summary (\$ in Thousands)</u>											
				<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>		<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)			3,660	3,773	3,825					
(U)	Appropriated Value			3,660	3,773						
(U)	Adjustments to Appropriated Value										
	a. Congressional/General Reductions			-34							
	b. Small Business Innovative Research			-39							
	c. Omnibus or Other Above Threshold Reprogram										
	d. Below Threshold Reprogram										
	e. Rescissions										
(U)	Adjustments to Budget Years Since FY 2001 PBR			-15	-34	21					
(U)	Current Budget Submit/FY 2002 PBR			3,572	3,739	3,846		TBD			
(U) <u>Significant Program Changes:</u>											
N/A											
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>											
		<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	N/A										
(U) <u>E. Acquisition Strategy</u>											
This program element is the only source of USAF funds to identify and initiate opportunities for international armaments cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and after the international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, rationalize cooperative opportunities, assess allied technologies, and generate sound, cost-effective cooperative programs between the USAF and our international partners. Once these initiatives and programs are started as international efforts they are transferred to the appropriate technology or systems program office and are											
Project 4645				Page 6 of 7 Pages				Exhibit R-2 (PE 1001004F)			

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)										DATE June 2001		
BUDGET ACTIVITY 06 - Management and Support					PE NUMBER AND TITLE 1001004F International Activities					PROJECT 4645		
(U) <u>E. Acquisition Strategy Continued</u> funded in their own program elements.												
(U) <u>F. Schedule Profile</u>												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U) -NATO C3 Agency Program Review				X				X				X
(U) -NATO Research & Technology Board	X		X		X		X		X		X	
(U) -Bilateral Technology R&D Projects MOUs	X	X	X	X	X	X	X	X	X	X	X	X
(U) -Cooperative R&D Projects	X	X	X	X	X	X	X	X	X	X	X	X
(U) -FCT Prioritization Board		X				X				X		
(U) -NATO Cooperative R&D Prioritization Board			X				X				X	
(U) -R&D Loans of Defense Equipment	X	X	X	X	X	X	X	X	X	X	X	X
(U) -Systems & Technology Forum (JA)	X		X		X		X		X		X	
(U) -Other Bilateral forums	X	X	X	X	X	X	X	X	X	X	X	X
(U) -Data/Information Exchange Annexes	X	X	X	X	X	X	X	X	X	X	X	X
(U) -Engineer and Scientist Exchanges	X	X	X	X	X	X	X	X	X	X	X	X
(U) -Administrative and Professional Exchanges								X				X
(U) -NATO Air Force Armaments Group	X		X		X		X		X		X	
(U) -Four-Power Air Senior National Representatives	X		X		X		X		X		X	
(U) -Four-Power Long-Term Technology Working Group		X		X		X		X		X		X

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